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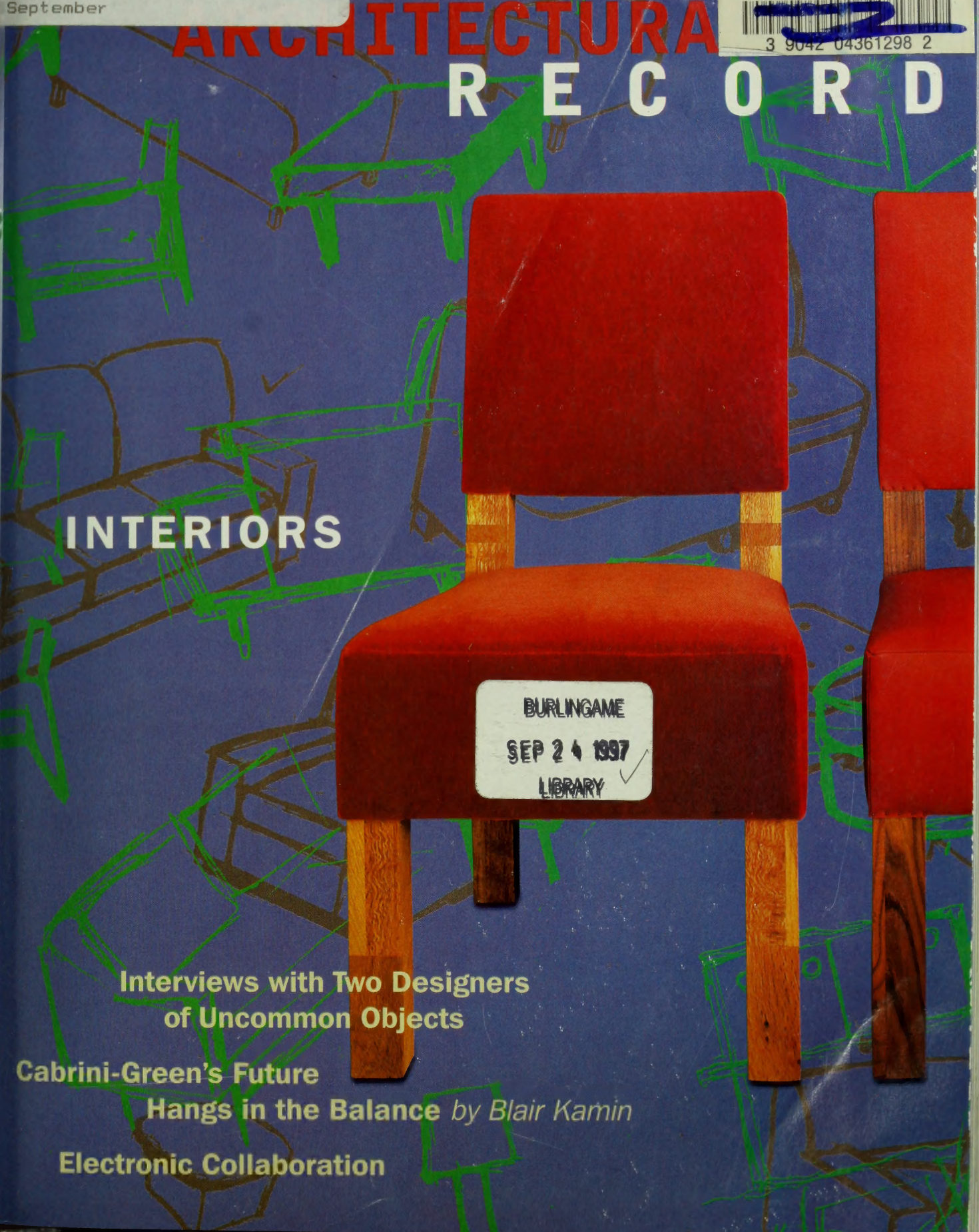
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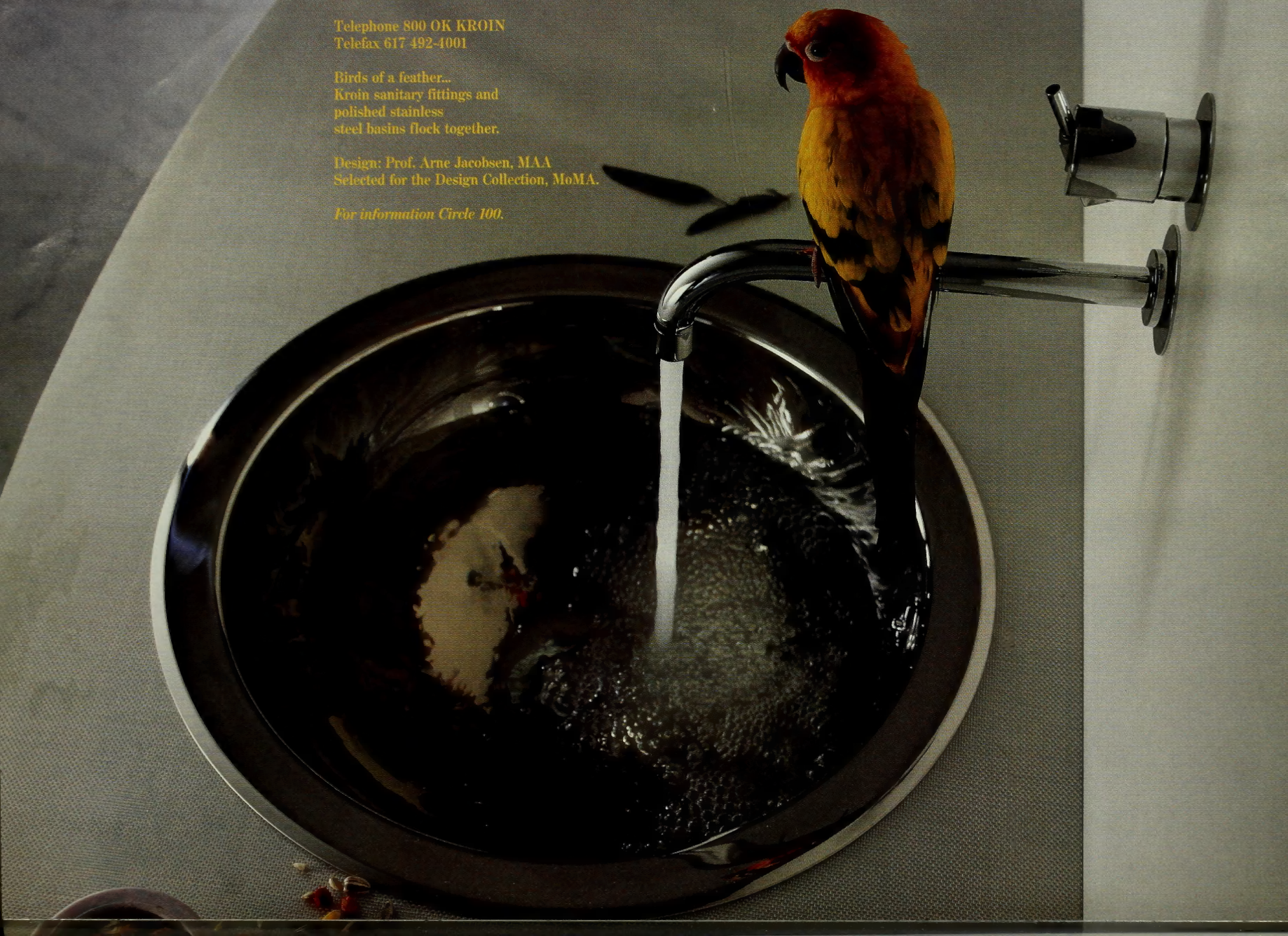
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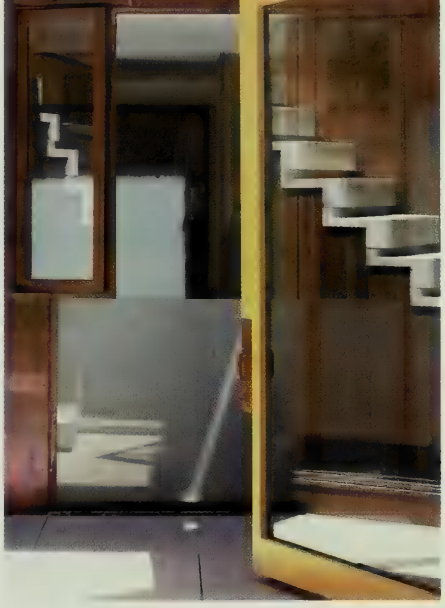
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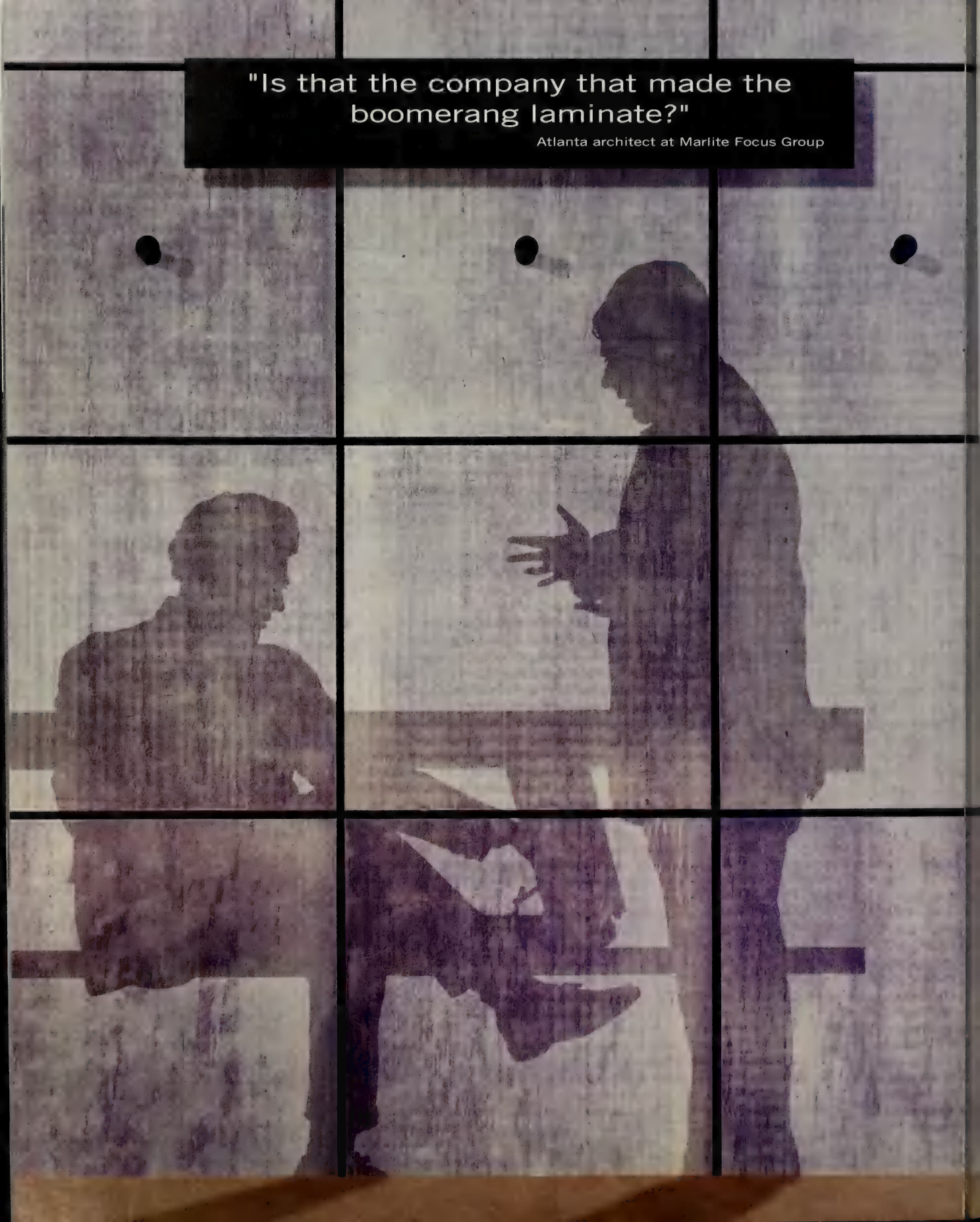
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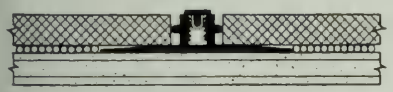
Continuing Education: *The AIA/ARCHITECTURAL RECORD continuing education opportunity offered this month is "Collaboration by Wire" (pages 131–36). The self-report form appears on page 172.*

Cover: *Chairs by designer Roy McMakin, along with excerpts from his sketchbooks. Photo: © Edmund Barr.*
Above: *Internal courtyard, Urban Interface Loft, New York City. Dean/Wolf Architects. Photo: © Peter Aaron/ESTO.*


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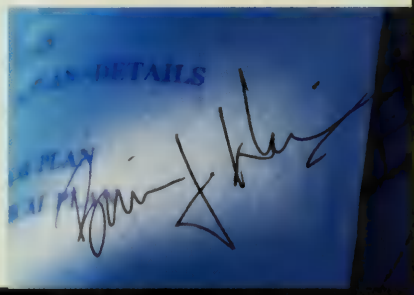
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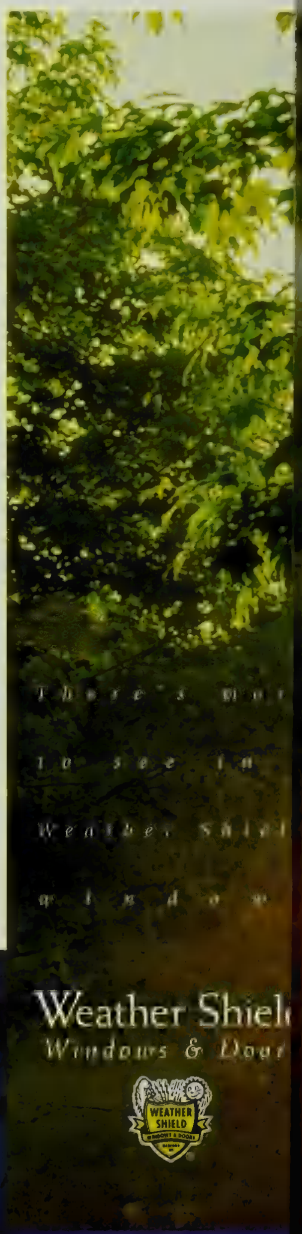
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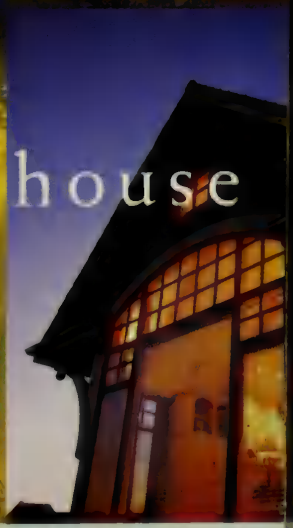
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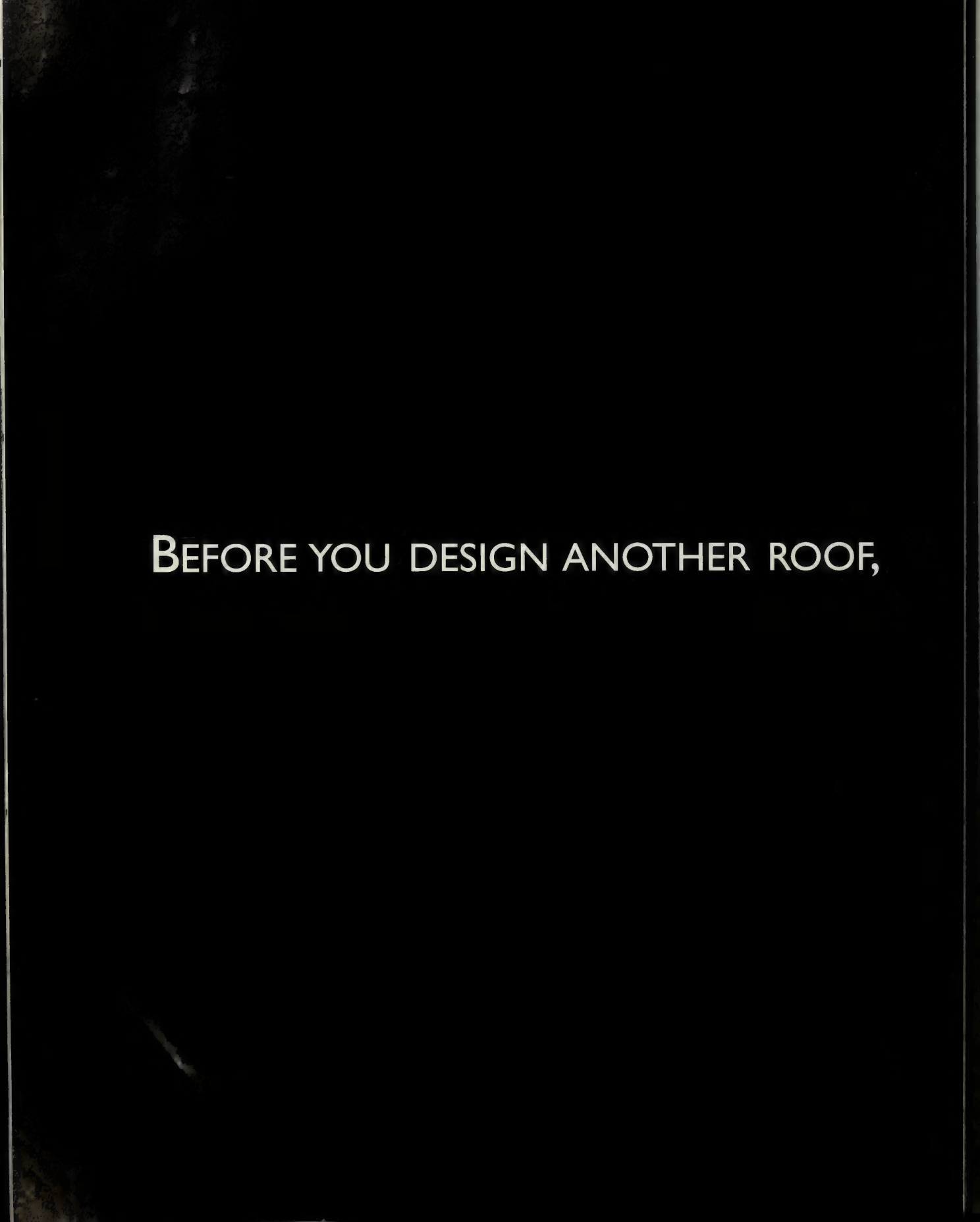






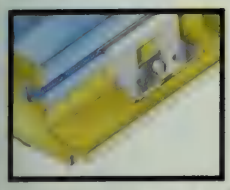


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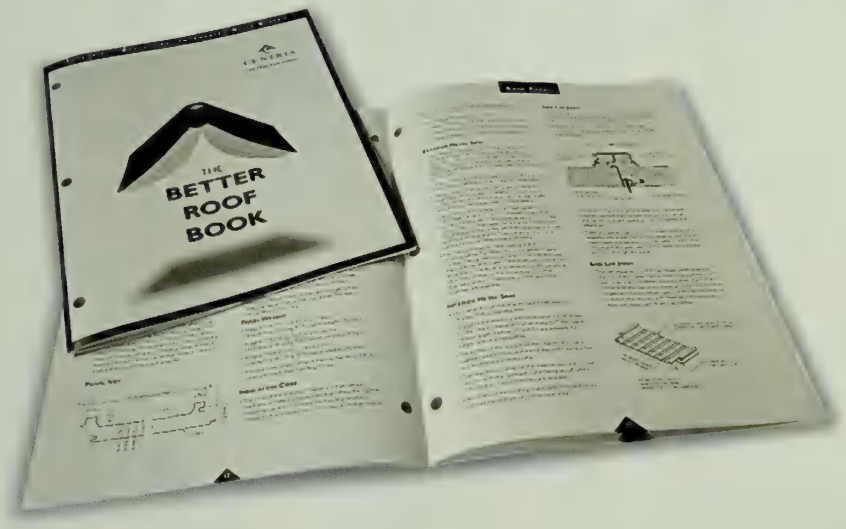
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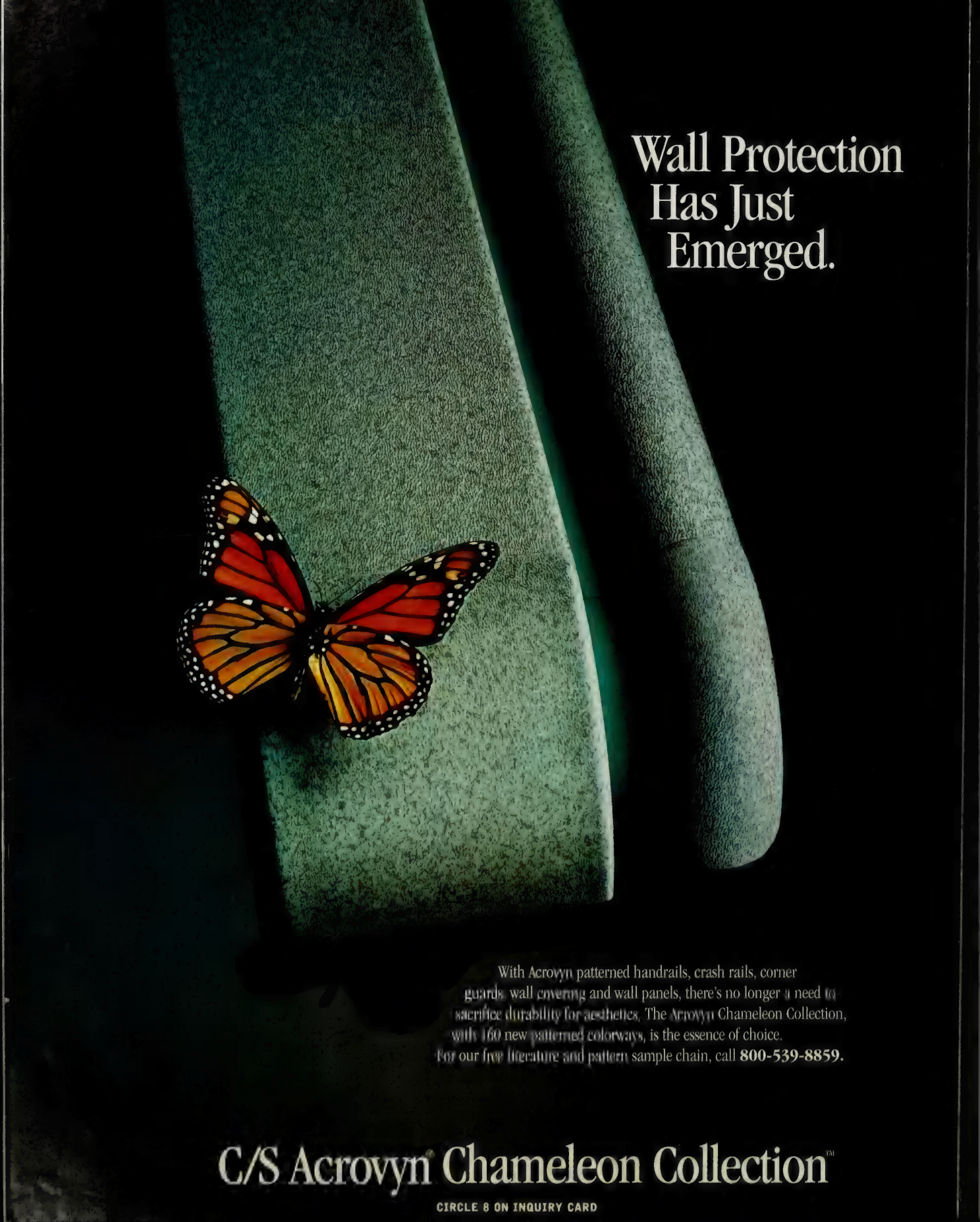
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EDITORIAL

Theory and Practice

BY ROBERT A. IVY, FAIA

Mention architectural theory and many practicing architects shudder. The very notion conjures up a jargon-laden fantasyland ruled by academics, a free-floating, self-indulgent university exercise removed from real clients, real budgets, and the real world. Theory, many professionals say, defines a fundamental chasm between school and practice.

The academy often takes the opposite approach, claiming that theory is critical to architectural education, providing the intellectual framework for subsequent work. The university years are a time for stimulation and development of a spirit of inquiry; internship and actual practice will produce mastery of technique and content.

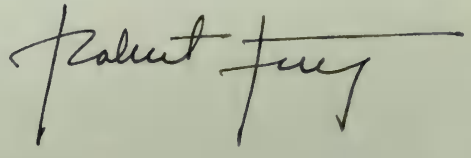
While the profession dithers on with its internal debate, others are pushing the boundaries of what architecture is and what it will become. The dissemination of architectural ideas, particularly through digital media, is encouraging a boundary-free look at the subject by all sorts–artists, builders, kids. Visit any museum or check out the shelter books to verify the claim.

I walked into an exhibition at the Guggenheim Museum SoHo recently called "Reversible Destiny: Arakawa/Gins" and was struck by the richness of thought present in work that spanned several disciplines simultaneously, from architecture to art and philosophy. It was clear that the houses and towns by these two artists/philosophers were extraordinary: the buildings represented in models and computer-generated renderings were provocative, their plans consisting of mazelike labyrinths of arcs and their floors rolling with actual topography. But the spaces were unhabitable: who could live there? Conceived as works of pure speculation, "concept art," the buildings failed almost every test that would be demanded of actual architecture. The work was diagrammatic architectural theory.

You could dismiss the entire effort by the creators as unrealistic, yet shown in the museum context, the works provoked rich speculation. The show suggested that architects help bring meaning to the material world by shaping our understanding of where and who we are. I was also struck by the forms. Walls made of curved, three-dimensional planes seemed to capture something of the spirit of our age, a post-Einstein world in which we, as architects, have traded the right-angled certainty of the T-square for richer, multidimensional tools.

Far from shocking me, as it upset the critic for another national magazine, the work recalled the vitality of the best student work from the design studio. It had that free-ranging outrageousness tempered by strong underlying ideas that you see in school, and that later somehow slips away. Architecture students would have been asked to go further, tempering the ideal with the mundane. One method of the design studio is to harness the same creative energies I witnessed in the work in SoHo and to ask real questions. How will someone sleep in this shelter? What materials embody the ideas? How can these undulating walls connect to the foundation? In architectural education, the spirit of inquiry and human potential is grounded in the pragmatic facts of human need and constructibility. Any project that fails to meet those criteria remains theoretical.

Part of architecture's attraction is the way it synthesizes complex systems of thought into material objects. We need good ideas, grounded in reality, to propel us into the next century. We need strong critical thinking to enrich our practice. We need schools of architecture that encourage coherent thought, imagination, and acknowledgment of reality-based needs. We need exhibitions that challenge us and encourage us to stretch our limits. We need theory and practice.





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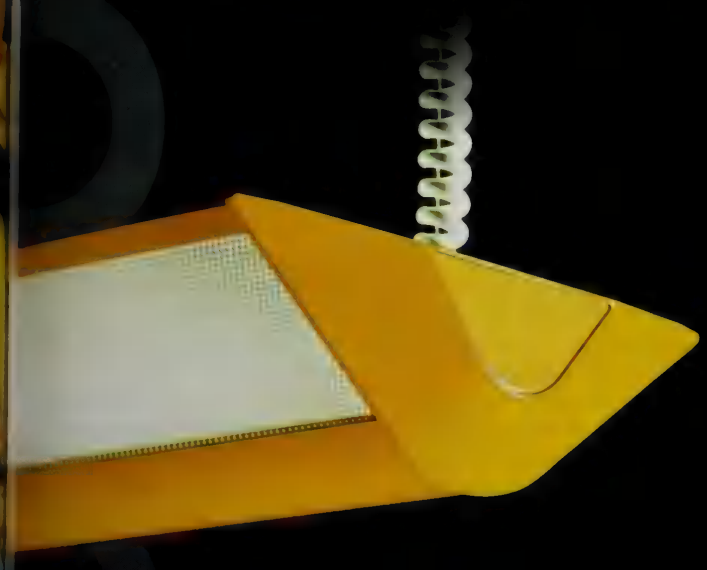
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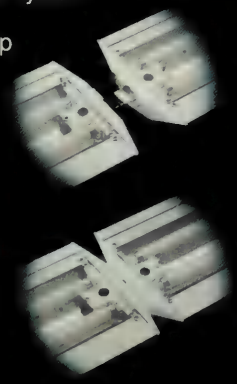
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CIRCLE 9 ON INQUIRY CARD

LETTERS

Rose-colored glasses

Kudos to Michael Sorkin for taking the moral and architectural high ground in "Hyper-Growth in South China" [July 1997, pages 72–77]. I wish I could offer the same praise to the authors of the "Reports from the Pacific Rim" in the same issue [pages 81–95].

Following Sorkin's discussion of the negative impact of the almighty dollar, readers were treated to such chestnuts as the Rybkowski/Seel report on Hong Kong and Nigel Simmonds' report on Indonesia, which suggest that political change would adversely affect the economies of these authoritarian societies.

While Simmonds' first paragraph pays lip service to the beginnings of social and political changes and challenges to the dictatorial Suharto regime, his statement that "Indonesia can ill afford a political meltdown at this time" says it all. Read: It's nice that there is a little opposition to the government, but be careful; serious political or social changes will hurt the economy.

Coming on the tail of Sorkin's insightful article, I cannot help but find the other authors' treatment of conditions in the Pacific Rim to be sadly ironic.

—George John Jacobs, Architect
San Francisco, Calif.

TV to promote architects

I was very disappointed to read that the delegates at the national AIA convention in New Orleans voted down a dues increase that would have paid for an advertising campaign promoting the value of architects [June 1997, page 33]. The public doesn't seem to understand the value of architectural services, and the AIA doesn't seem to be doing anything about this problem.

An advertising campaign could show the public how much schooling and hard work it takes to be an architect. The AIA should also produce informational and educational programming. The institute could produce a show called "This New House," which would showcase cutting-edge residential design and construction techniques, or produce biographical programming on architects of the past and present.

AIA membership dues would be better spent on TV ads and educational shows than on programs like Continuing Education, which drain architects' time and finances.

—Alexander C. Dzurec
University of New Mexico
Albuquerque, N.M.

Respect historic preservation

We received the 1998 AIA Honors & Awards call for entries shortly after reading the 1997 AIA Honors jury comments [May 1997, pages 67–96]. Thanks for making it easy to decide not to enter the program.

We are a small architecture firm specializing in historic preservation and restoration. It was not until we read the comments on restoration work by jury chair Malcolm Holzman that we found our skills are unimportant and unnecessary in the making of great architecture.

If the AIA cannot reward architects for developing skills necessary to make old structures alive and useful again, something is wrong. It is not easy to bring an old structure up to code, to find ways to install energy-efficient mechanical and electrical systems, to provide access for the disabled, to understand a range of materials and traditional techniques, or to blend the old with the new.

—Susan Frens
Frens and Frens
West Chester, Pa.

As outlined in the letter to the editor from James W. Rhodes [July 1997, page 14], Malcolm Holzman's comments regarding the AIA Honors point out that awards for historic preservation projects should be a separate category. Comparing preservation to design, interiors, or urban design projects is illogical. The establishment of a separate category for historic preservation projects, which could be evaluated based on the Secretary of the Interior's Standards for Rehabilitation, is long overdue.

I would add that the jury should include members who recognize the merits of outstanding preservation work. Holzman appears to lack the experience or knowledge necessary to understand the complex requirements of historic preservation.

—Lloyd W. Jary, AIA
Chairman, Historic Resources Committee, AIA PIA
San Antonio, Tex.

The trouble with joint ventures

I read with interest the article about the benefits of joint ventures by David R. Dibner, FAIA [June 1997, page 20]. I, however, am among the joint venture naysayers. In my opinion, there are a number of risks associated with a joint venture that may be better managed in other forms of association, such as the limited liability company (LLC).

The critical issue regarding the joint venture is that it is, in essence, a partnership, which involves "joint and several liability." This type of liability can result in one or more of the joint venturers being liable for the entirety of damages flowing from the activities of the joint venture but applied without causation by that party. Some people subscribe to the idea that cross-indemnification between joint venturers is a solution to the liability problems, but cross-indemnification often requires significant litigation costs before it becomes a remedy.

I recommend that firms considering a joint venture seek the guidance of legal counsel and a tax advisor with regard to the use of an LLC in lieu of a joint venture.

—James D. Hobbs, Jr.
Wright, Robinson, Osthimer & Tatum, Attorneys
Richmond, Va.

Concrete can fade

"Color in Architectural Concrete" [June 1997, pages 161–66] includes the statement that integral coloring "is as durable as the concrete itself, and will not weather or fade over time." While the metal oxide-based pigments used in colored concrete cannot fade or weather, the same is not true for colored concrete itself.

Concrete can have a faded appearance for a number of reasons. Cement paste can be eroded from a concrete surface by water, abrasion, or exposure to carbon dioxide. This condition occurs gradually and is associated with low-strength concrete as well as concrete that is mixed with too much water or troweled too early. Other fading can be attributed to efflorescence blooms, changes to surface texture, accumulation of dirt, and staining. Portland cement can also turn yellow after years of exposure.

The good news is that concrete suppliers and contractors are working to combine high-performance mix designs with superior craftsmanship for colored concrete that can last longer than the average human life span.

—Nick Paris, Vice President, Marketing, Davis Colors
Los Angeles, Calif.

The rewards of restraint

The Leeper Studio Complex at the Atlantic Center for the Arts [June 1997, pages 98–111] by Thompson and Rose Architects was very popular in my office. The project is quite sculptural and exhibits an incredible attention to detail. Too often, young architects try to squeeze too much into their early work, but Thompson and Rose demonstrate considerable restraint. Please continue to publish the Project Diary feature section; it makes the process of architecture very real.

—Kenneth Caldwell
ELS/Elsbani & Logan Architects
Berkeley, Calif.

Correction

Gruzen Samton/Croxton Collaborative, Associated Architects, Planners, and Interior Designers is the team responsible for the interior design of the EPA's new headquarters [July 1997, page 25]. Nicholas Lombardo, ASID, is the principal designer for the project.

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CIRCLE 11 ON INQUIRY CARD

SPEAK OUT Design-build provides "an opportunity for architects to return to the status of master builders."

MARK C. FRIEDLANDER



Mark C. Friedlander is an attorney and partner in the Construction Law Group of Schiff Hardin & Waite in Chicago, with a concentration in project delivery methods. He is an adjunct professor at the University of Illinois at Chicago School of Architecture and former chairman of the Professional Practice and Contracts Committee of the Design Build Institute of America. The views expressed here are solely the author's and are not necessarily attributable to any organization to which he may be affiliated.

As a lawyer who counsels architects, I firmly believe that architecture as a profession is headed in the wrong direction. Other professions are performing many of the services traditionally performed by architects, and architects disappoint their clients by contractually disclaiming responsibility for budgets, construction procedures, and other aspects of projects.

Architects have been somewhat hostile to design-build, classifying it as another encroachment on their status and services since they are usually subcontractors of the design-builder. However, design-build can be an opportunity for architects to return to the once exalted status of master builders—provided they seize the initiative by agreeing not only to design but also to construct the project.

For years, lawyers and insurers have told architects that they cannot guarantee construction prices or completion dates or take responsibility for the actual construction of what they design. These warnings are wrong. By structuring projects carefully and intelligently, architects can increase their prestige, self-esteem, and earnings as design-builders.

The key to the business structure is for the architect to form a separate construction company that enters into a strategic alliance with one or more general contractors. The architect's construction company assumes all of the usual risks to the owner, but subcontracts them all to the general contractor, who is the source of construction experience and financial/bonding capacity. The general contractor provides preconstruction services to enable the architect to commit to a construction price and completion date in exchange for being awarded a 100 percent subcontract to construct the project.

The marketplace has shown that the architect can earn a "fee" (really a mark-up) of up to 5 percent of the construction cost over and above its design fee. The fee is not compensation for sharing construction risks; it is akin to a finder's fee as compensation for awarding the 100 percent subcontract to the general contractor.

This fee does not come from the owner's pocket. It is generated by the synergy and efficiency of designer-led design-build. Experience with design-build has shown that it offers contractors substantially larger profit margins than competitively bid or even negotiated projects. Furthermore, in designer-led design-build, general contractors have no marketing overhead for projects and no time wasted estimating projects that are not ultimately awarded to them. The contractor also saves money by being able to learn the design intent and bid the project in a deliberate, cooperative manner with the architect and from the architect's friendly, affirmatively helpful construction administration.

The benefits to the architect of designer-led design-build are huge:

Greater profits. In addition to the 5 percent mark-up, the architect shares in the savings of any projects brought in under budget. Furthermore, the architect saves the labor involved in "defensively detailing" the construction documents.

Marketing. Architects will be able to make the same guarantees of cost and schedule as design-build contractors, but architect-led design-build is a more flexible structure than contractor-led design-build and more responsive to owner interests.

Control. The architect can ensure that the construction conforms to the design and can also make any necessary or advisable design changes during construction with minimal cost and consequence.

Reduced liability. Architect-led design-build results in reduced professional liability compared to traditional construction.

Minimal risk. The architect remains responsible for the usual professional design risks but, by delegating the entire construction to a financially sound general contractor, passes through all of the construction-related risks.

Architect-led design-build requires the architect and contractor to form a truly cooperative team that maximizes the interests of both. But in the long term, designer-led design-build allows the architect to reclaim status and control, returning the profession to its historic role as leader of the construction industry. ■

Contributions: *If you would like to express your opinion in this column, send submissions by mail (with a disk, if possible) to Speak Out, Architectural Record, 1221 Avenue of the Americas, New York, N.Y. 10020; fax 212/512-4256; or E-mail rivy@mcgraw-hill.com. Essays must not exceed 700 words. The editors reserve the right to edit for space and clarity. Where substantial editing occurs, the author will receive final text approval.*

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CIRCLE 12 ON INQUIRY CARD

MENTORS The pros and cons of working with a program manager, and the potential liabilities of using derivative drawings.

William J. Stanley, III, AIA, NOMA, is a founding principal of Stanley, Love-Stanley, a 32-person architectural firm in Atlanta, Georgia, specializing in public and institutional work.

Charles Heuer, FAIA, is an architect and an attorney at law. He runs the AIA's LegaLine program, which offers unlimited access to practice-related legal information to its subscribers.





My four-person office, which is located in a small town, has acquired a major commission: a community library. The client is thinking about hiring a program manager for the project. We have not worked with one before. What should we expect?
—Unsigned

William J. Stanley, III, AIA, NOMA, responds: First, talk to your client. Find out who the program manager is and what his or her responsibilities are to be. Will this person represent the owner's interest through decision-making? Has the program manager been hired yet?

Unfortunately, program managers are blurring the lines between architecture, programming, and construction. Too often, they manage projects without contributing to master planning, programming, or scheduling. In many cases, they offload liability back to the architect and siphon off clients' dollars from tight budgets in the name of building economy. In some cases, general contractors who have in-house engineers take this professional name without having the necessary credentials.

Many program managers can be helpful; my firm has had some pleasant experiences. If the client insists on working with a program manager, you must try to determine if this person will help or hinder the project. If you feel the person will hinder the project, you may want to consider withdrawing.

One way to avoid the potential problems of working with an outside program manager is to develop an in-house capability that you can market on your own. Architects, I believe, are inherently more qualified to be program managers than anyone else in the industry.

Our firm is relatively new. We have been approached by a well-respected local developer who has shown us what appears to be a set of design-development documents prepared by another firm with whom the developer is no longer working. We have been asked to prepare the construction documents for the project (based on the existing drawings) and to perform construction administration services. The client's request seems to be legitimate, but are we overlooking any potential liability problems?
—Unsigned

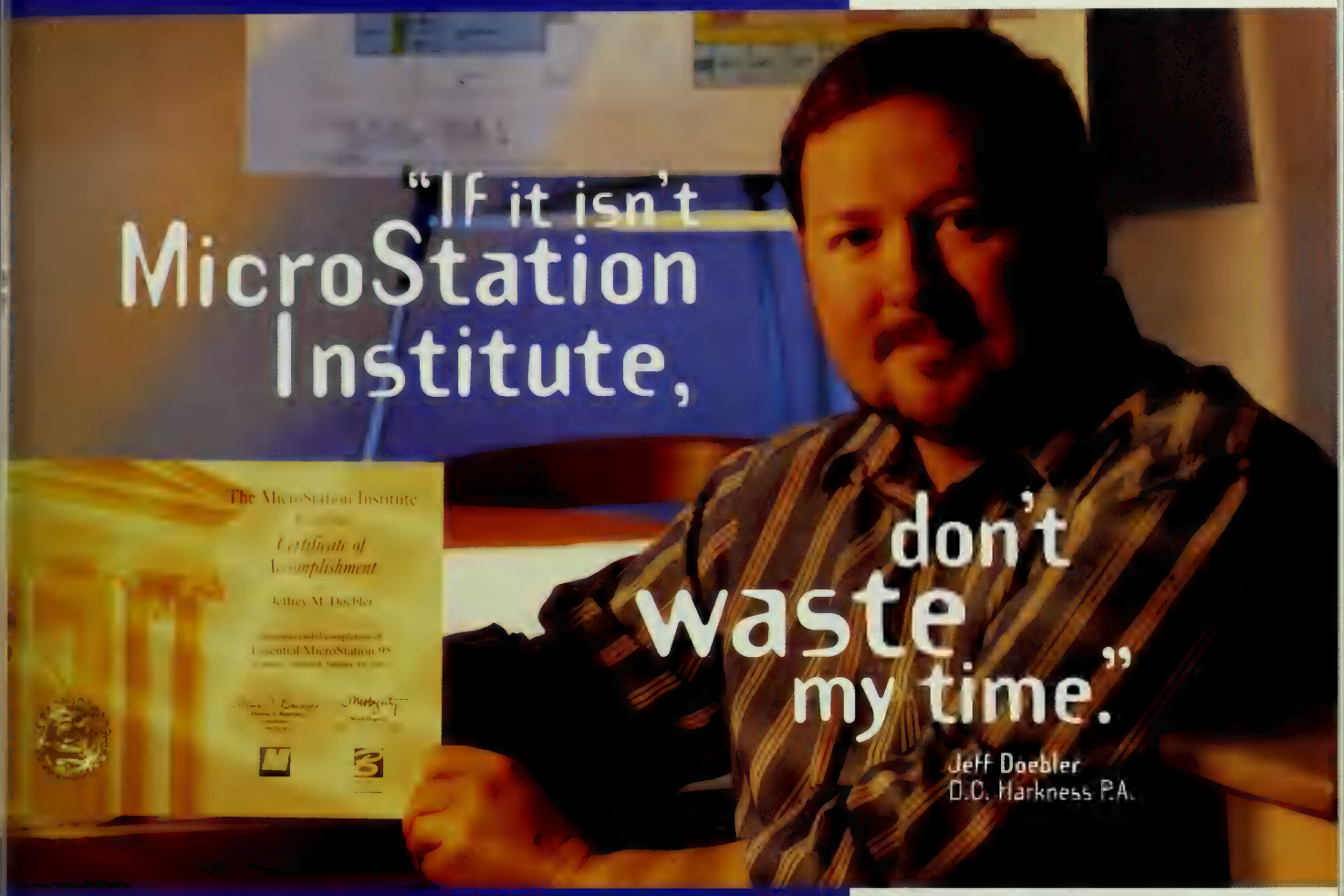
Charles Heuer, FAIA, responds: First, you must determine whether or not your potential clients have the right to use the design-development documents. If they don't, they cannot authorize your use of the documents either. For example, under the AIA B141 Owner-Architect Agreement, the architect owns the copyright to the documents. (It is possible, however, to own the physical documents but not the copyright). Whoever owns the copyright has the right to control—with some limited exceptions—who is allowed to make copies or to prepare derivative documents. Derivative documents are those derived from or based on other copyrighted documents.

Based on your question, it sounds as though you are being asked to prepare derivative documents. With the client's agreement, you may want to speak with the project's original architect to obtain permission. Such a conversation can be illuminating: Did the architect receive payment for the work? Did he or she have any difficulties with the client?

Another approach you may want to consider is to accept your clients' word about their rights to the documents and ask them to agree to defend and indemnify you in the event that the original architect sues for copyright infringement. This approach is realistic only if the client has assets substantial enough to cover the costs of such defense and potential damages.

If you decide to proceed with the project, be careful to verify the underlying code research and other design criteria that were supposed to be reflected in the original set of documents. You should not prepare working drawings without first being convinced that the preliminary work was performed properly and that you fully understand the underlying design criteria and assumptions.

Questions: *If you have a question about your career, professional ethics, the law, or any other facet of architecture, design, and construction, send submissions by mail to Mentors, Architectural Record, 1221 Avenue of the Americas, New York, N.Y. 10020; by fax to 212/512-4256; or by E-mail to rivy@mcgraw-hill.com. Submissions may be edited for space and clarity.*



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PULSE RECORD asks its readers: Should there be a single designation of the master's degree as the first professional degree for all architects?

This Month's Question

There has been continuing discussion among architects and educators regarding the B.Arch., the first professional degree granted by many five-year undergraduate programs, as opposed to the M.Arch. granted by two- or three-year graduate programs. The two degrees have led to confusion on the part of the public—as well as students entering the system—as to the difference between the bachelor's and master's programs.

Should there be a single designation of the master's degree as the first professional degree for all architects?

☐ **Yes** ☐ **No**

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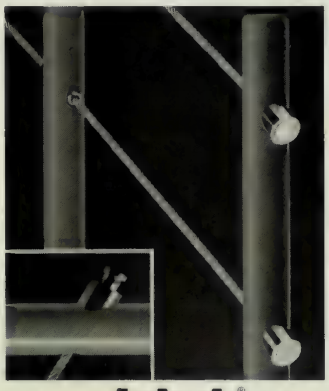
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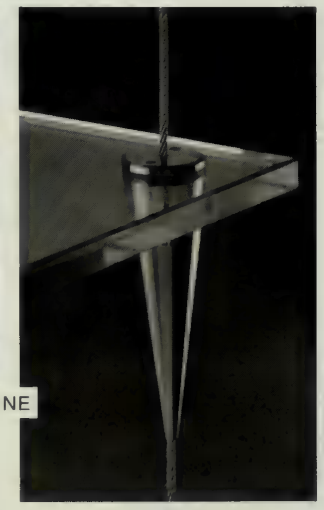
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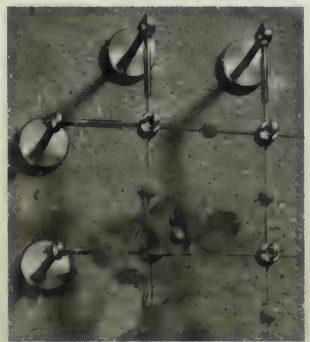
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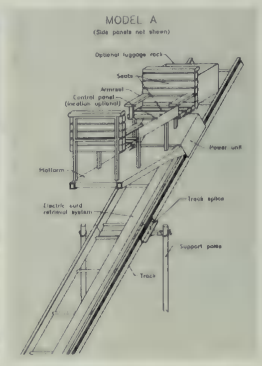
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CIRCLE 37 ON INQUIRY CARD

AND TO THINK OTHER WINDOW MANUFACTURERS SAID I



Architect Richard Smith grew up in Montana's Flathead River valley, exploring its forests, paddling its lakes and streams and marveling at the abundance and variety of its wildlife. So when he was asked to design a home perched above the waters of Flathead Lake, his inspiration was the majestic bird that makes its home in the same idyllic setting: the osprey.

Since the windows would be the key element in creating the look of a bird in flight, Richard spoke with all of the top manufacturers. More than one claimed they were impossible to build. Others were eliminated from consideration because their solutions compromised the design. Still others, because they couldn't provide the low maintenance finish the owner requested. Only one company rose to the challenge. Marvin Windows & Doors.



True to Richard's vision, yet mindful of builder Len Ford's timetable, Marvin's architectural department began designing the windows and creating the necessary production specifications. But a change in plans became necessary when the owner brought up his concerns about the frequent high winds coming off the lake. So Richard designed a special steel framework for the window openings and Marvin produced 24 direct glazed units with custom radii. Clad in the company's exclusive extruded aluminum, the windows conform to A.A.M.A. 605.2-92 standards;

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In the end, Richard Smith and Len Ford were as impressed with the process as they were with the product. And today, "the osprey house" is a required part of every boat tour of Flathead Lake.

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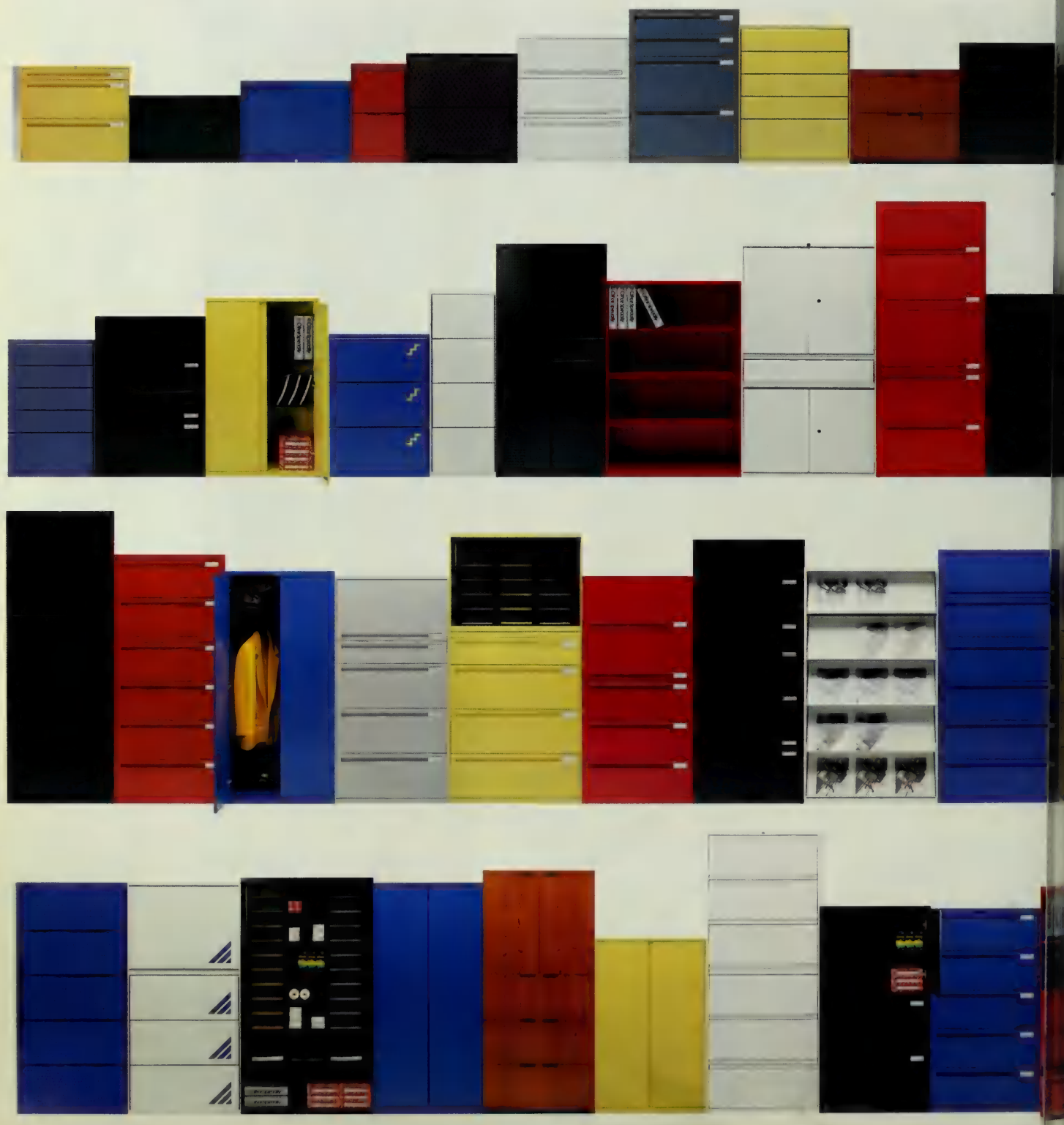
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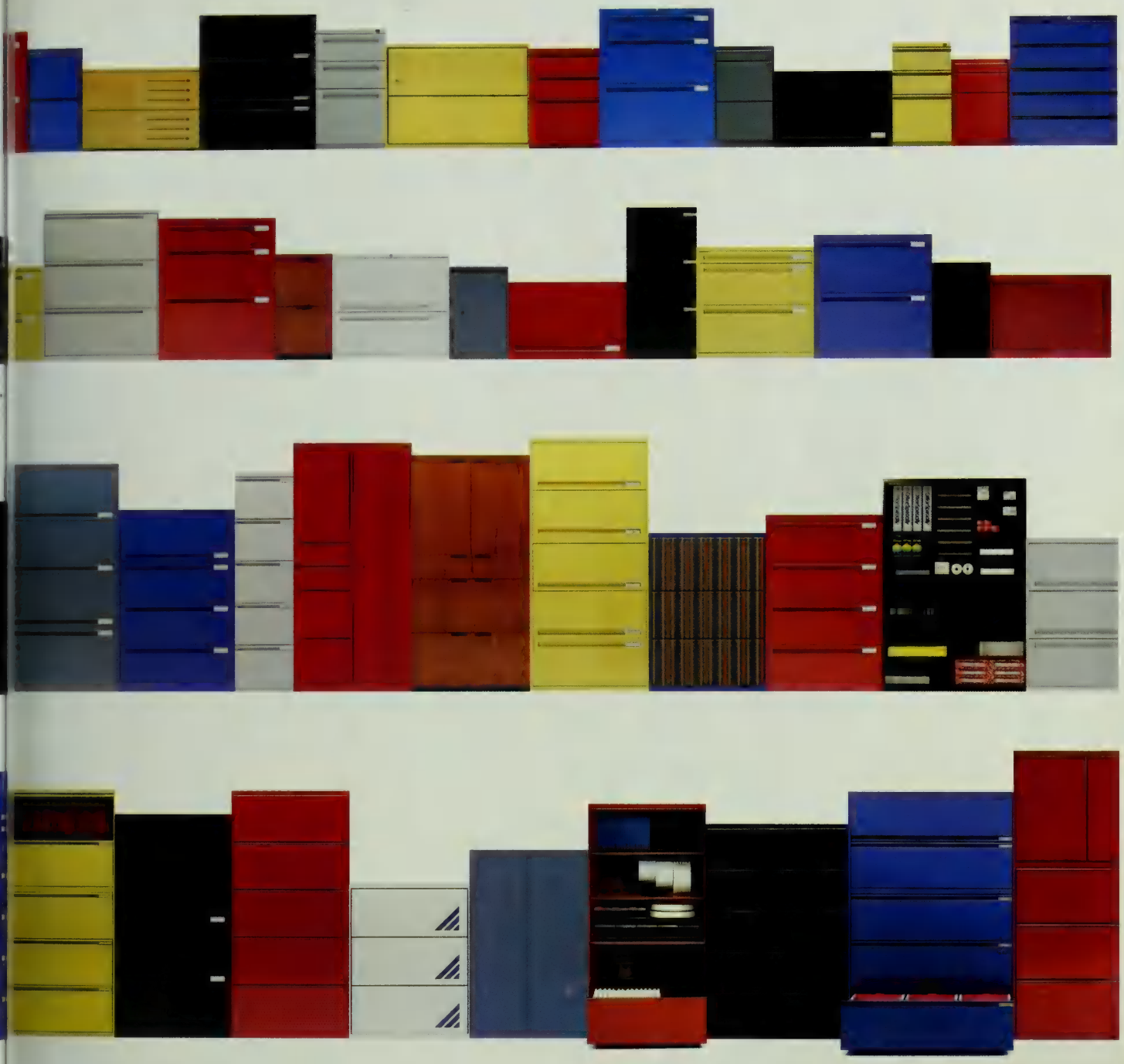
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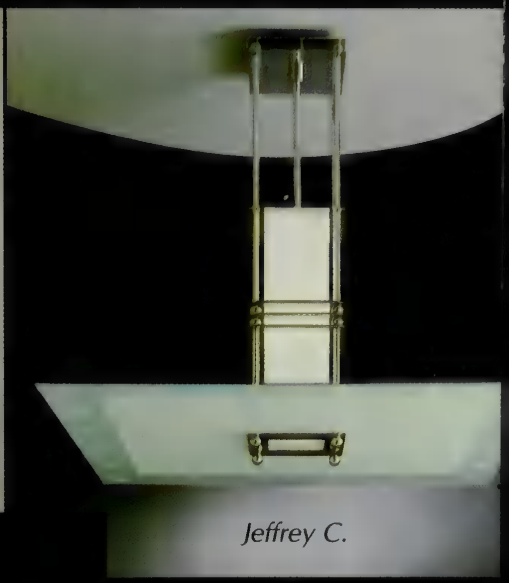
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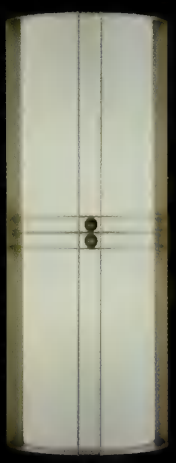

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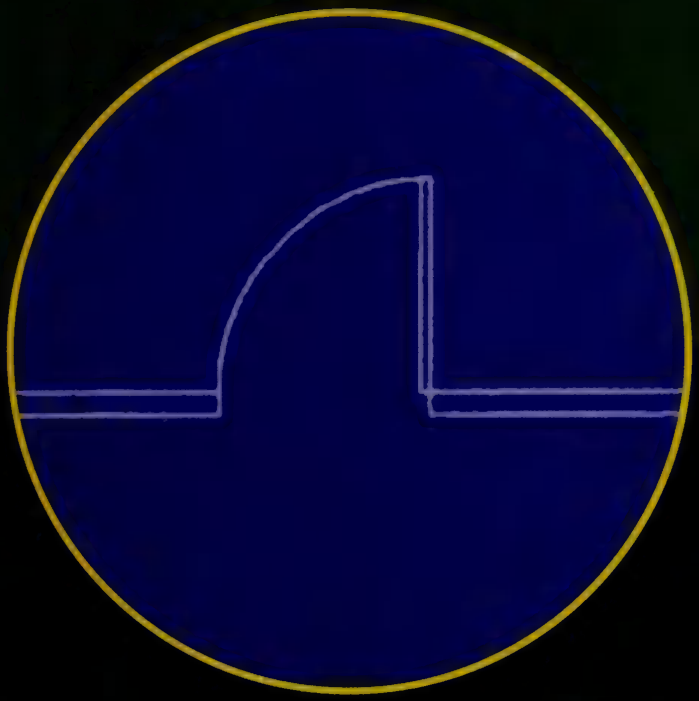

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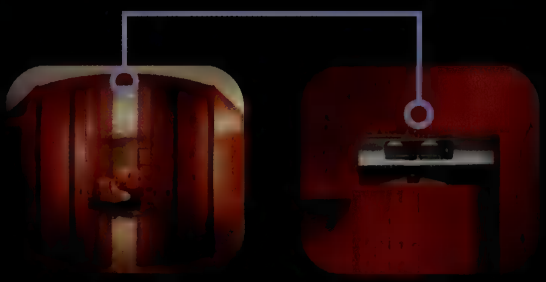
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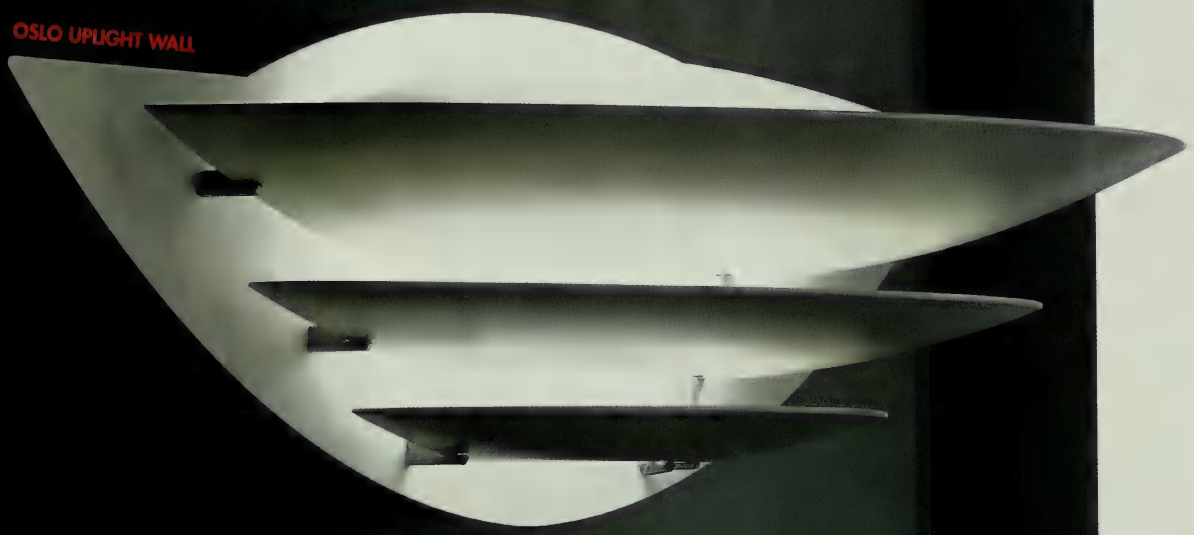
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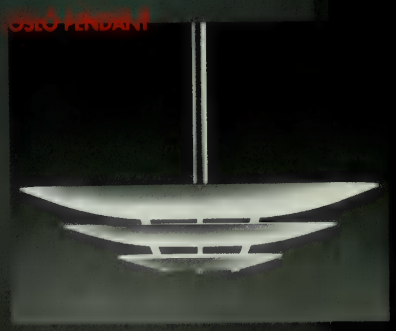
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CIRCLE 21 ON INQUIRY CARD

RECORD NEWS



ASIAN ART MUSEUM'S ADAPTIVE REUSE PLAN STIRS CONTROVERSY

Plans for converting San Francisco's former Main Library into the new Asian Art Museum are igniting controversy among landmark-conscious San Franciscans over the fate of 14 Depression-era murals in the building. Preservationists want the murals to stay, but designers have other plans for the wall space.

Hellmuth, Obata + Kassabaum teamed up with associate architects LDA Architects and Robert B. Wong to devise plans for the 1917 Beaux Arts library. Milanese architect Gae Aulenti, known for her work at the Musée d'Orsay in Paris, is museum and exhibition design consultant on the $110 million project.

The museum will display the Avery Brundage collection of Asian art, which spans 6,000 years and 40 countries. The collection has outgrown its home in Golden Gate Park.

The project raises the larger question of how adaptive reuse differs from preservation. "We want this museum to be contemporary and distinct from, but respectful of, the library's historic character. We're walking the razor's edge between respecting historic fabric and providing new life for the building," said project director Mark Otsea of HOK.

Originally designed for reading and quiet contemplation, the dark, enclosed interior of the building will be transformed into a light-filled public gathering place that will encourage walking and looking.

Key elements of the building's historic fabric—including the facade, entrance, grand staircase, loggia and great hall, vaulted ceilings, and travertine finishes—will be rehabilitated in a manner consistent with federal guidelines and San Francisco preservation mandates for historic buildings.

Aulenti's proposal to move the sea and skyscape paintings by Gottardo Piazzoni that flank the building's grand staircase are the center of the controversy. In part, there is concern that the stress of construction, especially the seismic retrofit, will hurt them. Aulenti also wants to punch arched openings into the loggia, creating an orienting platform for museumgoers.

Whether the murals stay or go, the project will have a positive impact on the city's Civic Center district, where there's a surfeit of abandoned and decrepit buildings. The museum, along with several other structures under restoration, will become a catalyst for further neighborhood improvement. *Lian Hurst Mann*



EUROPEAN PARLIAMENT BUILDING UNDER WAY DESPITE SLIPPERY GROUND

The instability of the soil on which the new European parliament building rests is both real and metaphorical. The building, one of the hurdles in creating a united Europe, is scheduled for completion before the year's end.

Designed by Paris-based Architecture Studio Europe, the $470 million building is on a highly visible though geologically unstable site. Before construction began in 1993, a reinforced-concrete wall was built to contain the shifting soil. In addition, underground water was pumped out and "corks" injected into the soil at 6-ft intervals to solidify the terrain.

Above ground, the project divides into three forms: a circular tower, a glass-faced wedge, and, breaking through the roof of the wedge, the wooden dome of the parliamentary chamber, which is faced with oak and red cedar slats.

Between each section are informal meeting areas. An interior "street" with shops and restaurants brings the public into the complex.

The clearly articulated design aided the fast-track building schedule, providing clear lines for the division of work crews. Construction is divided into four zones, with four separate contractors. Coordination is aided by shared computer drawing bases, accessed by each of the teams. *Claire Downey*



DIVERSITY AGENDA PROGRESSES AT CONFERENCE

Encouraging diversity in architectural education, design, and practice—the tenets of the AIA's "diversity agenda"— was the focus of the fourth annual AIA Diversity Forum conference last month in Seattle. The forum was created to address the lack of representation of minorities and women in the profession. Current AIA membership statistics show that less than 7 percent are minorities and 11 percent are women.

Calling on the AIA and its collateral professional institutions to embrace "true multiculturalism," Dr. Sharon Sutton, FAIA, honorary chair of the conference, said accomplishing change means withstanding the discomforts and inconveniences that come with it.

The workshop that generated the greatest interest among the 300 attendees was on the Boyer Report. According to the speakers, it lacks the incentives necessary for social diversity (RECORD, May 1997, page 124). Sutton described the difficulty in putting together diverse school accreditation teams when the organizations that supply the lists of team members submit neither women nor minority nominees. "That makes it impossible to enforce diversity standards," she said. *Lian Hurst Mann*





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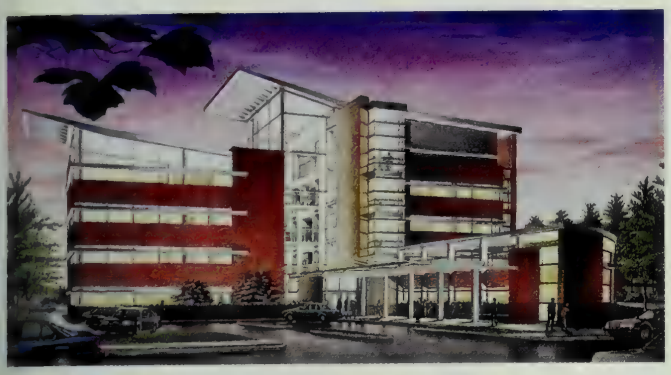
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FREESTANDING AIDS CENTER UNDER CONSTRUCTION IN CHICAGO

Chicagoans will soon be able to receive comprehensive AIDS treatment, regardless of their ability to pay. U.S. Secretary of Health and Human Services Donna Shalala attended groundbreaking ceremonies recently in Chicago for the CORE Center, the first freestanding outpatient treatment facility for people with AIDS.

The $25 million, 60,000-sq-ft center, designed by Perkins & Will, is located in the medical hub west of Chicago's Loop. It's scheduled to open in mid-1998.

Arising from a public-private partnership between Cook County Hospital and Rush–Presbyterian–St. Luke's Medical Center, the CORE Center will offer the combined HIV-related resources of both institutions, including counseling services, expanded diagnostic facilities, and outpatient treatments that currently require hospitalization.

The center will also offer on-site HIV testing, 24-hour counseling, and prevention and educational programs for women and children, and will participate in clinical research for HIV/AIDS and other infectious diseases, such as tuberculosis.

The two hospitals will share the facility's operational costs, saving an estimated $6 million annually on inpatient stays.

Funding for the project included $11.8 million from the federal government and $5 million from the state. The $8 million balance comes from a range of private donors, including Playboy Enterprises. Christie Hefner, chair and CEO of Playboy, chairs the CORE Foundation Project Board and has supported the center's development since 1994.

Approximately 23,000 Chicagoans are HIV infected, and half of them don't know it. Cook County Hospital serves 25 percent of all HIV/AIDS patients nationwide, and over two-thirds of the country's afflicted women and children, half of whom lack health insurance. *Barbara Nadel, AIA*

IMPRESSIVE ART COLLECTION ON VIEW AGAIN IN REOPENED FRENCH GALLERY

After five years of renovation, Lille's Palais des Beaux-Arts, which holds France's second largest collection (after the Louvre), is now open. The $44 million project by Paris architects Jean-Marc Ibos and Myrto Vitart returned the museum's generous gallery spaces and tiled interior domes to their original beauty while doubling exhibition space.

The treasures in the imposing 1892 structure were almost forgotten as the city focused its hopes and its budget on Euralille, the super-modern city center master planned by Rem Koolhaas. While Euralille gave Lille a much-needed image boost, the historic buildings slid into neglect. The museum was dark and badly maintained, and much of its collection sat unseen in crates.



The architects turned to the basement. The vaulted brick caves, once used for storage, were converted to medieval and Renaissance galleries.

A second, 6,300-sq-ft gallery was carved out beneath the central atrium. Finished entirely in black, it contains Louis XIV's scale models of northern France, its villages made from fragile silk. A third exhibition space was created under the rear garden court and covered by an expansive skylight.

Ibos and Vitart, both former associates of Jean Nouvel, were inspired by the original building scheme, which included a matching wing that was never built. By slipping a knife-thin, largely transparent 100,000-sq-ft addition along the southernmost boundary of the site and cladding it with mirrored glass, the existing building's facade was captured in the new. A pattern of dashes seriographed onto the mirrored facade dilutes the reflection, creating an impressionistic homage to the original architects, Berard and Delmas.

To reintroduce the public to the museum, a free zone was created that extends from the main entry, through the central atrium, out to the garden, and on to the restaurant within the new addition. Highlighting these public spaces are two brilliantly colored glass chandeliers commissioned from artist/designer Gaetano Pesce. *Claire Downey*

ARCHITECTS AND MASONS VACATION TOGETHER **In a pine forest in Maine, a masonry wall winds a short distance and ends. Scattered around the wall are other architectural fragments—brick benches, fireplaces, tile floors, and foundation walls. This vestigial village was created by the participants in masonry camp, held each summer for the past five years on Swans Island. Sponsored by the International Masonry Institute, the program brings together architectural students and apprentices in the "trowel trades" for a week-long series of lectures, demonstrations and hands-on activities. By exposing the future architects to the art of building, and the future builders to the design process, the Masonry Institute hopes to bring about more harmonious relations between the two groups.**

After an early morning breakfast, campers spend the days learning the basics of brick, tile, terrazzo, stone, and plaster work. Evenings are devoted to designing mosaics, making molds, and casting plaster and concrete.

The culmination of the program is a 12-hour building session. The campers are divided into design-build teams, with each team picking an architectural element they can construct. Completed projects are critiqued by guest architects, who this year included Hugh Newell Jacobsen and William Rawn. ***Deborah Papier***

Family Portrait



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CIRCLE 23 ON INQUIRY CARD

SHANGHAI'S NEW MASTER PLAN SHELVED—LIKE THE OTHERS

Wolfgang Wagener's "Shanghai 2000: Masterplan for a Sustainable Future," a mixed-use apartment community that's suitable for up to 10 sites in the Yangtze Delta, has it all: lifestyle diversity, minimized environmental impact, economical design, and more. But planning is a sometime thing in Asia, where master plans are commissioned only to sit on the shelf. Wagener's is no exception.

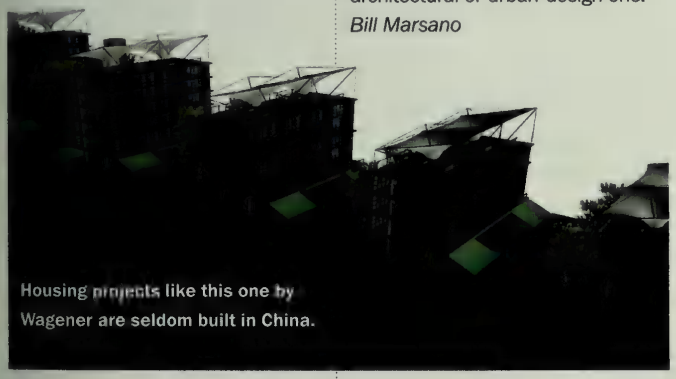
An architect with offices in Los Angeles and Berlin, and a visiting professor at the University of Southern California, Wagener is bitter about the entire process."I wonder if the idea of planning is purely a Western concept that doesn't translate," he said.

Shanghai's current population of 13 million is expected to nearly double in 15 years, and "there's no real model for managing such growth," he said. "Initiating a master plan requires tremendous time and money, and the city's officials are overwhelmed. They are looking for a magic bullet, a solution they can impose now."

The projects that do move forward in Asia, such as Renzo Piano's mammoth airport in Osaka, are those driven by what Wagener calls "pure capitalism." Airports, hotels, and banks are easier to finance and complete. "They quickly start paying back the investment, and they're dramatic. They make headlines and skylines. It's the local projects, like housing, that suffer."

Asian officials like fast-track buildings; they want them to go up quickly. "Their solution is to take Hong Kong–style 20- or 30-story high-rises and march them like soldiers across this totally flat landscape. They'll probably look back in 10 years and wonder what they did wrong."

As for his own plan, he hasn't yet given up all hope. The plan received good feedback from the city's officials. But at this point, it's more a political problem than an architectural or urban-design one. *Bill Marsano*



Housing projects like this one by Wagener are seldom built in China.

TOWER GLOWS WITH THOUSANDS OF LIGHTS



It's not often that people stop and gape at a building that's been part of a city's skyline for 150 years. But this summer, the stoic, gray-stone Chicago Tribune Tower was transformed into a shimmering mosaic of magenta and blue to celebrate the building's sesquicentennial. Commissioned by the Chicago Tribune Company, the "light sculpture" was created by lighting artist John David Mooney, a native Chicagoan who was "daunted" by the imposing, neo-gothic building. He used 1,635 fluorescent lights, 88 tungsten-halogen lamps, and 474 strobes to fashion a different design for each facade. The lights were wedged into the mullions of the windows on 33 floors. ***Deborah Papier***

BETHLEHEM RESTORATION PART OF LARGER PALESTINIAN BUILDING PROJECT

The United Nations Educational, Scientific, and Cultural Organization (UNESCO) is working with the Palestinian Authority to make plans to restore Bethlehem. The project is intended to help Palestinians capitalize on Holy Land tourism.

The announcement was made in Paris by representatives of the Palestinian Authority and UNESCO. Poverty, pollution, neglect, and sprawl have left Bethlehem so badly damaged that it is now "unrecognizable," said UNESCO director general Federico Mayor. He called on the world community to contribute the more than $2 million needed to fund studies that would determine how to best restore Manger Square and the town's central marketplace. Some preliminary plans have already been drawn by volunteer students from the Belleville School of Architecture in Paris.

The Bethlehem restoration plans, along with other projects in Gaza and Jericho, are part of UNESCO's "Program of Assistance to the Palestinian People," which emphasizes job creation, consolidation of the Middle East peace process, and modern construction in the formerly occupied territories. *Thomas Vonier*

EIFS MANUFACTURER WINS COURT CASE, CLASS-ACTION SUIT STALLED

For the first time, a jury has weighed in on the bitter dispute between homeowners and manufacturers of Exterior Insulation Finish Systems. A Washington State couple argued for more than $500,000 in compensation from Atlanta-based Sto Corp., claiming that the EIFS used on their home was a defective product prone to trap water and cause wood rot. After a three-week trial, Sto's product was deemed "reasonably safe as designed" and the couple's charges were dismissed.

Richard Reyes, corporate counsel for the Sto Corp., cited "errors in construction" as the cause of the wood rot. One expert witness testified that the homeowners omitted flashings specified by the architect and used substandard windows.

Meanwhile, a U.S. District Court in North Carolina has denied certification to a Federal EIFS class-action suit, ruling that responsibility for moisture damage must be reviewed case by case. A separate class-action suit for North Carolina residents will go to trial after six months' negotiations fell apart, according to the state attorney general's office.

Praised by architects and homebuilders for its insulating properties and design versatility, EIFS came under intense scrutiny in 1995 when some North Carolina homeowners began to find moisture damage behind their new EIFS installations.

The EIFS Industry Members' Association announced that they were "hopeful that the Washington verdict will have a favorable impact on the other class-action suits." *Peter Edmonston*

SEATTLE SLIDES LEAD TO STRINGENT CODES AND LIMITS ON DEVELOPMENT

Between last Christmas and New Year, winter storms dumped record amounts of snow and rain on the Seattle area. Combined with rapid snowmelt, the precipitation resulted in hundreds of landslides. Now it is blame that's sliding among city officials and developers as to who's responsible for the estimated $30 million in damage.

Seattle's Department of Construction and Land Use (DCLU) is establishing stricter codes for building in slide-prone areas. But the new codes make building impossible in desirable areas.

Hugh Shipman, a geologist with the city's department of ecology, explained that the area's thin soil sits atop impermeable hard pan. Moisture percolates through fractures in the hardpan into layers of sand and clay beneath. When groundwater flows between the layers of till and clay, slides result.

By understanding these factors, designers can create buildings that are properly anchored, and landslide damage can be mitigated on developed shoreline bluffs. "Little in the way of geotechnics were done in the past," Shipman said.

The DCLU wants to encourage better design by insisting on extensive site characteristic information and updated soil reports. Third-party review with outside geotechnicians will be needed for complex projects and large sites.

But many in the design community are dubious of real change since the city can always sanction construction by issuing permits. Seattle's expanding economy, combined with land scarcity and a political climate extolling development, all favor building. There are plenty of willing buyers and sellers of view property, even if it's located in slide-prone areas. *Peter Stekel*



WHITNEY MUSEUM AND CANADIAN CENTRE FOR ARCHITECTURE FORGE ALLIANCE

New York's Whitney Museum of American Art and Montreal's Canadian Centre for Architecture (CCA) recently announced plans to share architectural exhibitions. The collaboration provides the Whitney an opportunity to address architecture, while the CCA will finally have a New York outlet for its programs.

"Our exhibitions are shown in Europe, North and South America, yet we have lacked a sustained presence in New York City, the cultural capital of the world," said CCA founder and director Phyllis Lambert. The new alliance means the CCA can draw on the Whitney's strengths and gain access to the lively New York arts and media communities.

Upcoming is a major new exhibition on Ludwig Mies van der Rohe, scheduled for Fall 2000 at the Whitney. *Barbara Nadel, AIA*

ARCHITECTURAL PRESS ROUNDUP

BUFFALO GETS A BOOST

Buffalo Evening News, August 7, 1997 Despite its reputation for lousy weather, there are some nice things about Buffalo, N.Y., including its impressive number of Frank Lloyd Wright–designed houses. Now the Darwin Martin House, Wright's 90-year-old, Prairie style "masterpiece," is getting an estimated $1.5 million from state government for much-needed restoration work. That'sa tiny part of the $23 million necessary to complete the job, but someday the house will become an important tourist attraction.

HOUSING FOR GRANDMOMS

New York Newsday, August 8, 1997 "Her mother asked me to babysit for a few hours and never returned," says a Boston woman who's cared for her granddaughter for 12 years. An estimated 1.5 million American children are being raised by their grandparents. Now Boston developers are building "Grandfamilies House," a 26-unit complex that's both handicap-accessible and toddler-proof. Putting the grandfamilies together offers a built-in support network for the residents.

NO MORE OPERA UNDER THE STARS

USA Today, August 7, 1997 With no roof to protect them, patrons of the Santa Fe Opera's open-air theater keep dry during rainy-night performances by making raincoats from garbage bags. Now, to the chagrin of some theatergoers, the opera is adding a roof. That means no more rain-soaked evenings, but it also puts an end to views of the stars and the lights on the distant mountains.

SETTING DESIGN LIMITS, THEN BREAKING THEM

The Baltimore Sun, July 20, 1997 Baltimore mayor Kurt Schmoke speaks glowingly about the new $137.6 million Wyndham Hotel planned for the city's Inner Harbor and the $150 million Grand Hyatt proposed for a site near Camden Yard. But both of these slick, ungainly towers will violate height limits and other design controls established to protect the city. The test of a successful hotel is whether it can house visitors comfortably and fit the architectural vernacular. These towers succeed on the first count only.

TAMING WILD BEASTS AT THE MALL

The Wall Street Journal, July 8, 1997 New York–based Ogden Corp. will soon open a combination zoo/restaurant/boutique in a mall outside Los Angeles that pushes the limits of what those in the retail business call "shoppertainment." Complete with hidden scent canisters that evoke the smells of the forest, the desert, and the ocean, a series of "biomes" re-create California's various landscapes and wildlife. More than 60 species of animals will roam behind partitions while visitors shop for T-shirts and nature bric-a-brac.

DESIGNING AN ARCHITECTURAL JOKE

New York Daily News, July 7, 1997 New York architect and developer Joseph Pell Lombardi is planning what he calls "New York's first classically inspired folly." It's an old, 12-story loft building that, when done, will resemble a huge classical column in the early stages of deterioration—including cracks, stains, and sprouting vegetation. Inside will be luxury condominiums selling for $900,000 each. The project gives "shabby chic" a whole new meaning.

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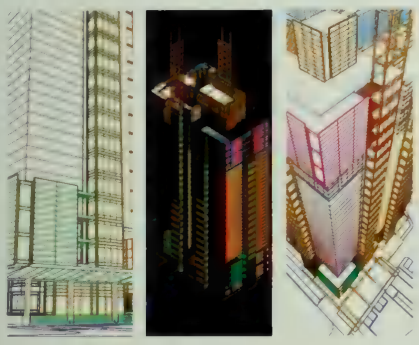
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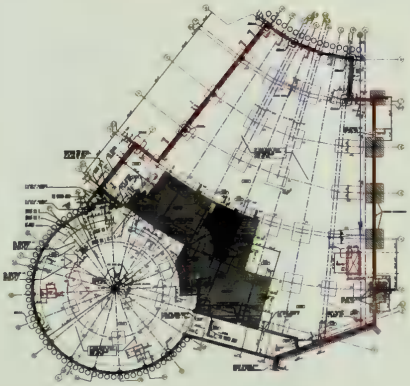


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CONEY ISLAND DEVELOPMENT SPURRED BY STATE BOND INVESTMENT

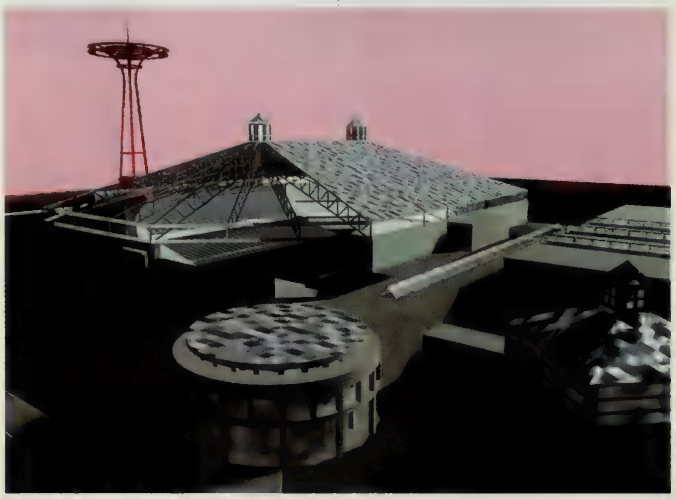
New York State approved at least $50 million in bonds and a private real estate developer is offering another $100 million to build a new sports center on Coney Island.

"It's about time the state woke up and smelled the hot dogs," said one Coney Island business owner. The investment is expected to invigorate revitalization and spur private development projects.

Bruce Ratner, a real estate developer who helped revive downtown Brooklyn, is offering the $100 million. He declined to comment on the project.

The Sportsplex is one component in a development plan for Coney Island that will also include an entertainment/retail complex. The sports center will seat 12,000 and provide an arena for indoor soccer, basketball, and track meets.

Groundbreaking may be as much as two years away. First design studies, zoning reviews, and an environmental impact statement are required. *Jessie Mangaliman*



IIT FIRST-ROUND LIST CONTAINS MORE THAN THE USUAL SUSPECTS

The "usual suspects," as well as several unknown architects, have been invited to join the first phase of the Illinois Institute of Technology's international campus center competition.

A six-member jury, led by Atlanta architect Mack Scogin, reviewed written or graphic submissions from the first round of competitors and was to announce the five finalists this month.

The big question is: Who will respond to the invitation? IIT will pay the five finalists $25,000 for preparing drawings, a model, and written material—not enough money, according to some.

The campus center will be built near Ludwig Mies van der Rohe's Crown Hall on a $25 million budget. The finalists' designs are due January 20. The jury will select a winner in February.

Among those invited to the first round are nine Pritzker Prize winners, including Tadao Ando and Philip Johnson; and seven firms that made the Museum of Modern Art's initial list for its renovation, including finalists Jacques Herzog and Pierre de Meuron.

There are deconstructivists (Peter Eisenman), practitioners of "light construction" (Jean Nouvel), and green techies (Norman Foster). IIT kept its promise to give younger, lesser-known practitioners a chance. There also are some wild cards, like RECORD contributing editor Michael Sorkin. *Blair Kamin*



PAUL RUDOLPH: A PERSONAL APPRECIATION

Born in Elkton, Ky., Paul Rudolph earned his architectural degree from Harvard. He served as chairman of the architecture department at Yale from 1958 to 1965, and ran his own New York City firm until his death on August 8 at the age of 78.

Paul Rudolph was the greatest American architect of his generation, the most unself-conscious, the most direct. He shaped mass like clay and had an absolute genius for light, making buildings that were at once remarkably disciplined, sensuous, and tectonic. His buildings were substantial enough to leave ruins—near geology.

The Art and Architecture Building at Yale University is immortal, complex, brilliant, and moody. Together with the horizontal, street-spanning Temple Street Parking Garage, also in New Haven, these are as fine a pair of buildings as ever produced in this country. I especially admire the superb Burroughs Wellcome and Company Corporate Headquarters in Durham, N.C., a monument in modernity's entry into the post-technology age. Paul was an urbanist whose vision, steeped in the history of the town in which he worked, grew richer and richer.

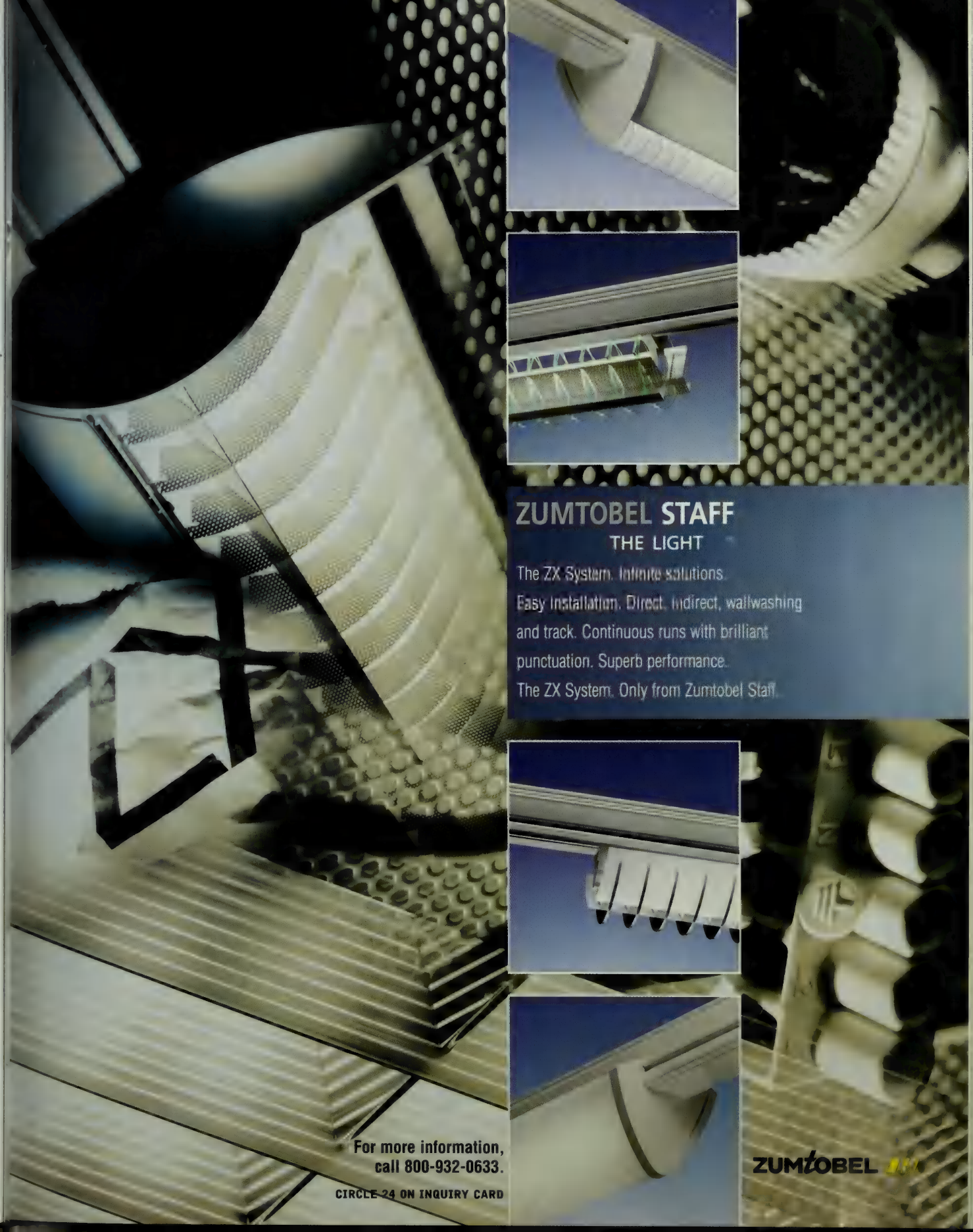
Paul was very Southern, and his work was Southern too. There's a thickness to the atmosphere down south, as if light and space press against the skin. His early projects in Florida have a shipbuilder's elegance and minimalism, as if all were in service of sun and air.

His drawings were the work of angels, and his architectural legacy is clear in these drawings. They're direct, precise, recalling and then exceeding the styles of projection and the pen-and-ink austerity of classical mechanical drawing. There's something incredibly optimistic about these drawings. They are filled with dreams, with an American sense of "Why not?" They are also the work of a music lover—proportioned and rhythmic.

Paul never gave less than his full attention and was always completely engaged and very serious, cutting right to the point. He was terrific on juries and demanded clear communication.

In every life there runs a vein of tragedy. Paul was a post-Roarkian hero, swept from the American scene with shocking speed after the burning of the Art and Architecture Building. This was certainly the central event in the formative years of my architectural generation. I understood that fire, though, not as a protest against architecture but as a kind of outrageous potlatch.

I never lost faith in him, even when he fell somewhat from American architecture's graces. Paul Rudolph was not an architect who preached, he was one who believed. And what he believed was that architecture could make life very beautiful. ***Michael Sorkin***



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CIRCLE 24 ON INQUIRY CARD

ZUMTOBEL

Paris fire destroys architectural artifacts Months of renovation work and 10 percent of a collection of architectural artifacts by Viollet-le-Duc were destroyed when fire tore through the eastern wing of Paris' Palais de Chaillot. Another 30 percent of the collection of models and molds of gargoyles and saints, many of which have outlasted their originals, was damaged. The fire, which caused $10 million in damage to the Musée des Monuments Français, will postpone the reopening of the palace, originally scheduled for 1999.

Meier wins Japanese architecture award AIA Gold Medalist Richard Meier travels to Tokyo next month to receive $150,000 and a medal from the Japanese imperial family after being named winner of the 1997 Praemium Imperiale for Architecture by the Japan Art Association. The award is given in artistic fields not covered by the Nobel Prizes, including theater, painting, sculpture, and music. Meier is the third American architect to receive the prestigious honor since its inception in 1989. Architects I. M. Pei and Frank Gehry were past winners. Meier said he was "very honored" by the award.

Public-sector buildings sweep Canadian awards Most of the 20 buildings that won the 1997 Governor General's Awards for architecture, sponsored by the Royal Architectural Institute of Canada (RAIC), are public-sector structures, including a correctional facility for women and a bridge linking two cities. The prestigious RAIC Gold Medal was awarded to Raymond Moriyama, FRAIC, of Toronto. Five Medals of Excellence were awarded to Les Architectes Boutros & Pratte, Montreal; Pierre Thibault Architecte, Quebec City; Sturgess Architecture/FSC Manasc Architects, Calgary and Edmonton; Patkau Architects Inc., Vancouver; and Brian Mackay-Lyons Architecture and Urban Design in Halifax.

The Yukon Visitor Reception Centre won an RAIC Medal of Excellence.

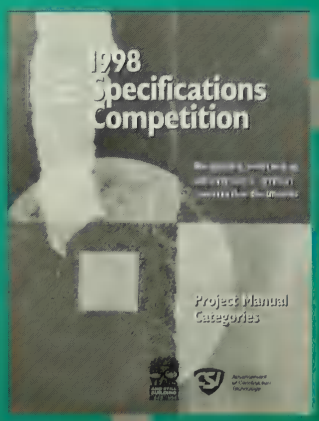


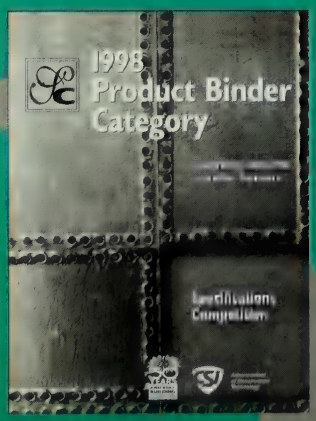
HOK to redesign ferry terminal Hellmuth, Obata + Kassabaum, in collaboration with Peter Eisenman Architects, has begun work on a feasibility plan for the ferry terminal in Staten Island, New York, which is used by more than 18 million commuters and 12 million tourists each year. In addition to improving the terminal's operation and design, the goal of the study is to assess the viability of integrating the Staten Island Institute of Arts and Sciences.

Outdoor areas to become more accessible Existing and future beaches, campgrounds, and trails may be subject to new accessibility guidelines under the Americans with Disabilities Act and the Architectural Barriers Act. The U.S. Access Board convened a 25-member committee to determine what level of access should be provided. The results will be published by the Access Board as a proposed rule and finalized after public comment has been incorporated.

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CIRCLE 26 ON INQUIRY CARD

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Miss America's new address A new Sheraton Hotel next to the Atlantic City Convention Center in New Jersey is likely to become the new headquarters for Miss America. The 500-room hotel houses a gallery dedicated to Miss America. Scheduled to open in November, the hotel was designed by the Weihe Design Group in Washington, D.C.

Engineering exhibition at Pompidou In 1923, dirigibles required very big parking spaces. Eugène Freyssinet, an engineer and a pioneer of prestressed concrete, devised an arched hangar with an economy of concrete that's still enviable. The hangars, destroyed in 1944, are among the projects in "The Engineer's Art," a retrospective of important engineering work from the mid-1800s to today, on display until the end of this month at the Georges Pompidou Center in Paris.

Lights, camera, action Construction of the first new studio in Culver City, Calif., in 78 years is likely to begin soon. Designed by RoTo Architects and developed by LuxCore LLC, the multimedia center will be home to film and TV shows, as well as high-tech media like Web and software publications. The 825,000-sq-ft facility on 12.25 acres will include a 400-room hotel, a restaurant, 12 sound stages, and production offices. "Movie studios have traditionally been patched together over time," said James Magowan of Lux-Core. "Our intent is to make a cohesive environment for producers, directors, and multimedia designers."



This arched dirigible hangar spanned 164 ft and was 288 ft tall.

Two construction groups allied Construction Specification Canada and the U.S. Construction Specifications Institute agreed to a five-year alliance in which they'll "hot-link" Internet sites, exchange articles for each other's publications, and cosponsor continuing education. The alliance will help members in cross-border projects.

Staffing problems a common complaint In a recent survey conducted by Zweig White & Associates, project managers in architecture, engineering, and environmental consulting firms cited problems in finding, keeping, and motivating project staff as their biggest problem. Other complaints included lack of time, excessive workload, and leadership problems.

Making beautiful music The new $24 million Rebecca and John J. Moores School of Music building at the University of Houston includes an opera house, a model classroom for preparing elementary school music educators, and a library. Designed by The Mathes Group in New Orleans, the building is due to open this month. ■

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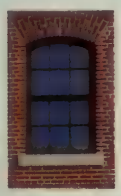
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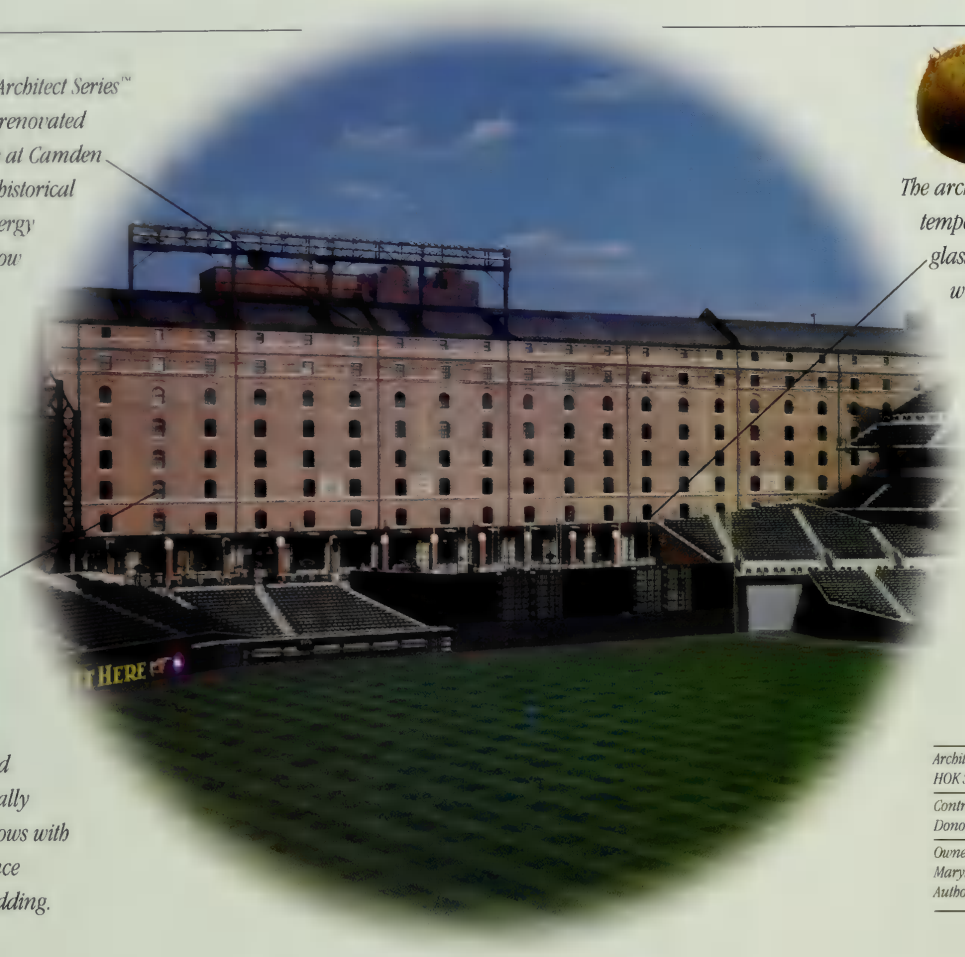
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Calendar

September 19–October 15
Architectural League of New York
New York City
"Paul Rudolph: Selected Drawings" includes approximately 25 of the late architect's projects in the United States and Asia. Selected by Peter Blake and Ernst P. Wagner, the drawings are of both built and unbuilt works from 1948 to 1989. Call 212/753-1722.

September 27–28
Points Hilton Hotel
Scottsdale, Arizona
"Does Design Make a Difference?" is the question posed to participants in the AIA Committee on Architecture for Education, held with the Council for Educational Facilities Planners International. Call David Roccosalva at the AIA at 202/626-7418.

September 29–October 2
Marriott Waterside
Norfolk, Virginia
The 82nd annual conference of Building Officials and Code Administrators International will include business sessions, code development hearings, and educational and professional development events. Expo '97 will be held September 28–30. To register, contact BOCAI, 4051 W. Flossmoor Road, Country Club Hills, Ill. 60478. For information, call 708/799-2300, x248; fax 708/799-4981; or E-mail order@bocai.org.

September 30–January 11, 1998
Cooper-Hewitt Museum
New York City
"Design for Life: A Centennial Celebration," organized in honor of the museum's first 100 years, takes a look at "the central role design plays in our lives." It includes 200 works from the museum's collection of design objects. Call 212/860-6894.

October 5–9
Los Angeles Convention Center
Los Angeles, California
Combining Autodesk University and CAD Camp, Autodesk Design World is a meeting of users, developers, and dealers. Events include a hands-on look at new technologies. Call Mark Cohen or David Radoff of Upstart Communications at 510/420-7979.

October 10–13
Marriott Hotel
Miami, Florida
"Reconstruction: A Strategy for Success" is the theme of the 27th annual convention of the National Organization of Minority Architects (NOMA). For information on the conference or NOMA, call Taj Hunter at 305/571-9177.

Through October 13
Los Angeles County Museum of Art
Los Angeles, California
"Charles Rennie Mackintosh" is a traveling exhibition of the Scottish architect's extensive body of work. Call 213/857-6000.

October 14–19
Sweeney Convention Center
Santa Fe, New Mexico
The 51st National Preservation Conference, sponsored by the National Trust for Historic Preservation, addresses the theme of "People and Places: Living in Cultural Landscapes." Write the National Trust, 1785 Massachusetts Avenue N.W., Washington, D.C. 20036; call 800/944-6847; or E-mail santafe_npc@nthp.org.

October 16–18
The Merchandise Mart
Chicago, Illinois
Restoration/Chicago 97 is a conference and trade show for professionals involved with the restoration or renovation of historic structures and traditional architecture and objects. For information, write EGI Exhibitions, 129 Park Street, North Reading, Mass. 01864; call 508/664-6455; or fax 508/664-5822.

October 17–18
Seattle, Washington
The Interfaith Forum on Religion, Art, and Architecture PIA is sponsoring "Light and Sound for Sacred Spaces," an exploration of innovative acoustics and lighting in religious buildings. For information, call 800/242-3837.

October 17–19
The Merchandise Mart
Chicago, Illinois
In addition to an extensive display of contemporary furnishings, the first annual Chicago Design Show will include an exhibition of work by U.K. designer John Makepeace and an exhibition of Vitra's miniature chair reproductions. For information, call 800/677-6278.

October 23–25
Outrigger Prince Kuhio
Honolulu, Oahu
The convention of the Society of American Registered Architects includes design awards, seminars, and business sessions. To register, call Michael Jones at SARA at 619/299-8891.

October 23–28
Memphis, Tennessee
"Architecture in Perspective," the convention of the American Society of Architectural Perspectivists, features seminars, workshops, a portfolio exchange, and an auction. To register (by September 23), write Alexander Lee, ASAP, 52 Broad Street, Boston, Mass. 02109; or call 617/951-1433, x225.

October 26–29
Hyatt Regency at Union Station
St. Louis, Missouri
"Rail-Volution '97: Building Livable Communities with Transit" is an interdisciplinary gathering of policy makers, citizen-advocates, and planning, design, and transportation professionals. Areas of discussion are linking transit and land use; building citizen and institutional support; and creating a competitive advantage for metropolitan areas. For information, call 800/788-7077 or fax 302/436-1911.

October 28–30
Georgia World Congress Center
Atlanta, Georgia
MetalCon International '97, the annual conference and exhibition focusing on the use of metal in design and construction, will include industry meetings and more than 500 exhibits of products, services, equipment, and technology. For information, call 800/537-7765.

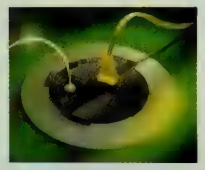
October 29–31
Javits Convention Center
New York City
InterPlan, an annual commercial interior design and planning trade show, is to be joined this year by BATIMAT North America, the U.S. version of the European commercial and residential building construction and design show. For information, call 800/950-1314, x2611; to register, visit http://www.interplanshow.com.

October 30
National Press Club
Washington, D.C.
The annual National Summit on Building Performance is designed to raise awareness of building performance *(continued on page 162)*



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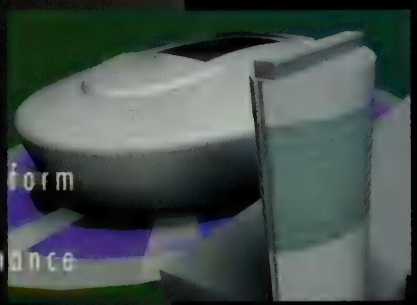
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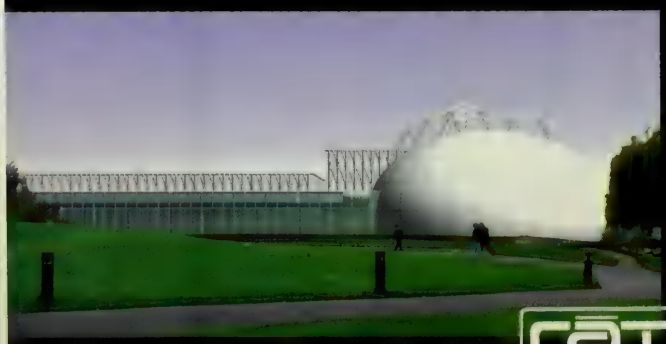
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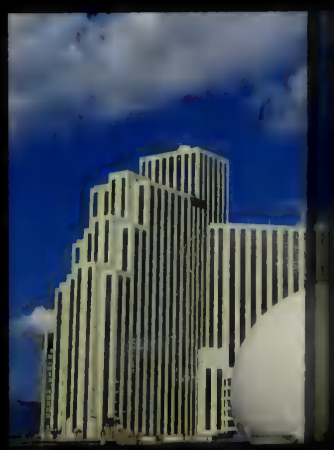
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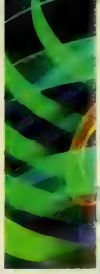
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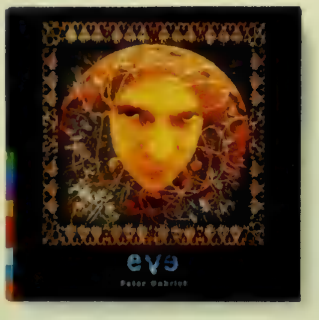
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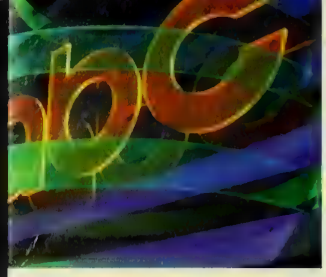
From the tiniest Proteobacteria to the brainiest Craniata, The Tree of Life represents an ambitious effort to catalog the world's organisms. Biologists David and Wayne Maddison began in 1985 by developing MacClade, a program for creating evolutionary trees, on a Mac® 512. Now they're using Macintosh computers to give the Tree a life of its own on the Web, where it's available to researchers, teachers, and students around the world.

Dr. Donald Laub founded Interplast to help children and adults from Third World nations find high-quality, free reconstructive surgery to repair birth defects, burns, and other crippling deformities. Right now, they are using PowerBook notebook computers to provide 'telemedicine' links between physicians in the rainforest of Brazil and Yale University. So they can quickly share patient histories and information.





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It wasn't enough for this Mac enthusiast to earn a degree in chemical engineering and an M.D., join the Peace Corps in Africa or practice medicine in Los Angeles. Dr. Mae Jemison became a science mission specialist on the space shuttle Endeavor. When she landed, she dedicated herself to finding ways to apply technology to social issues. Her projects range from applying satellite telecommunications technology to health care in developing countries to establishing an international science camp. Now that's multitasking!

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To learn more about how Macintosh technology is inspiring people like Dr. Mae Jemison, David Mash, Dr. Donald Laub, and Harry Marks to do more, create more, and change the world, visit the AppleMasters Web site at www.applemasters.apple.com/

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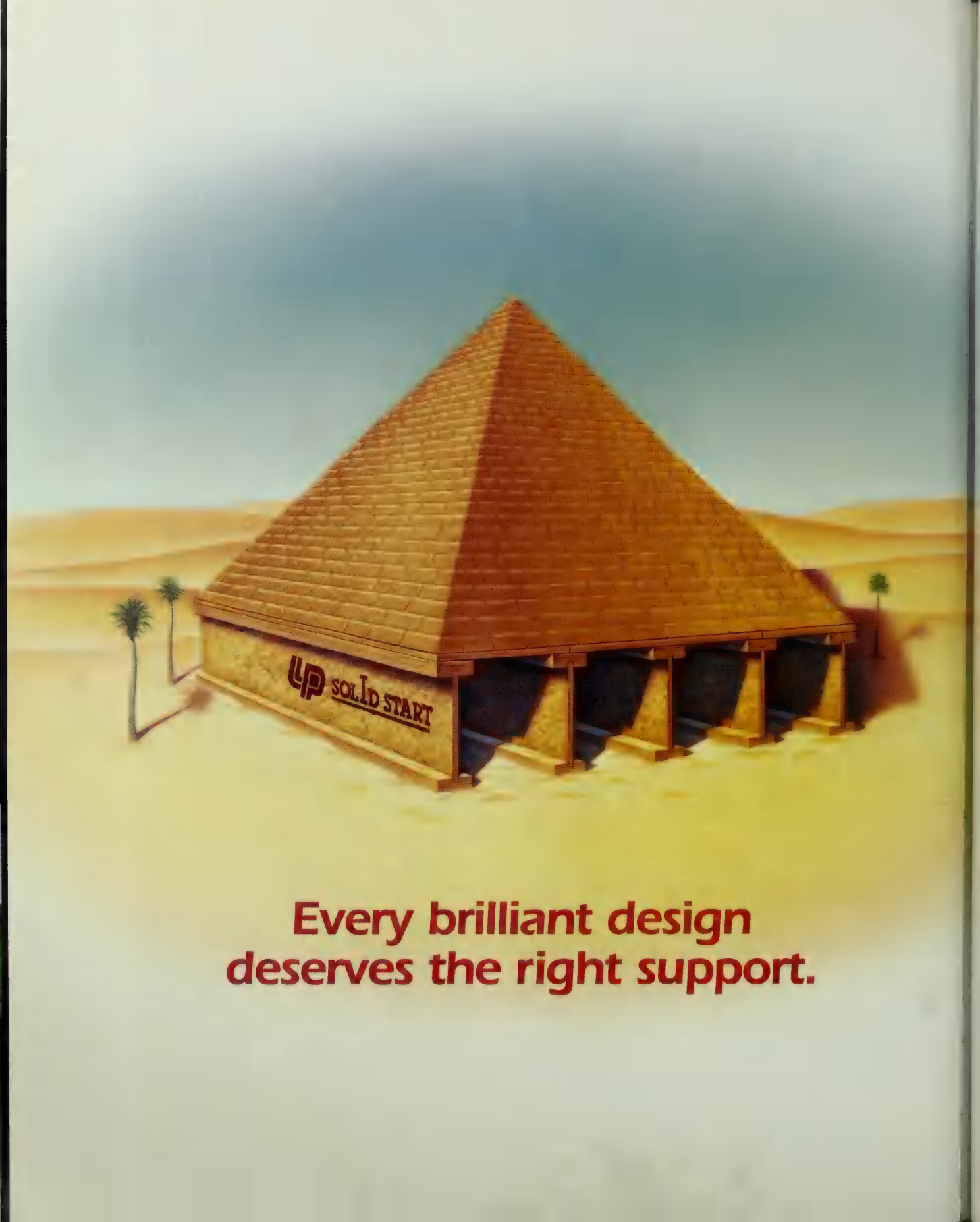
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CIRCLE 33 ON INQUIRY CARD

SECOND IN A SERIES

Who Controls the Future of Cabrini-Green?

AS PLANS TO IMPROVE CHICAGO'S MOST NOTORIOUS PUBLIC HOUSING COMPLEX INCH FORWARD, TENANTS LINE UP AGAINST POLITICOS AND PLANNERS.

by Blair Kamin

Editor's note: This is the second article in an intermittent series following Chicago's Cabrini-Green housing project as it goes through the throes of a proposed redevelopment. Cabrini-Green can be considered a test case that will have national implications in the realms of public-housing policy, urban planning, and the architectural profession. Here architecture critic Blair Kamin, who has covered the Cabrini-Green story for the Chicago Tribune, *follows up on the initial installment of the series, which he wrote for* RECORD*'s February 1997 issue.*

If you know the way Cabrini-Green looks today, the drawings of its proposed future are simply stunning. There are no drug dealers milling about on the sidewalks, no 15-year-olds pushing baby carriages. Along Clybourn Avenue, a glass-strewn vacant lot disappears, replaced by a shopping-center parking lot lined with perfectly edged shrubs. In the distance, a boarded-up, 19-story high-rise makes way for a picturesque clock tower. On Larrabee Street, the "$1 Everything" outlet, the storefront liquor stores, and the jobless men sitting outdoors on blue milk crates are gone. Instead, there are stately row houses, their swelling bay windows marking a beat along the street, their wrought-iron fences conveying an aura of upper-middle-class respectability.

This is the vision of normalcy for Cabrini-Green that emerged from a two-day charrette last December, held by the city of Chicago at a cost of $100,000. No one should doubt the ability of the firms involved, especially Goody, Clancy & Associates of Boston, to work such miracles in this closely watched drama. Yet for all one wants to believe that can happen at Cabrini-Green, the gap between ideal and reality there has never seemed as vast as it is now.

Mayor Richard M. Daley, who seized control of the redevelopment last year from the Chicago Housing Authority (CHA), had wanted to assign contracts by spring for row houses and flats to replace Cabrini-Green's hellish high-rises. Yet spring came and went without any significant demolition or construction. And so did summer, though a city branch library opened just east of the project in August. In the meantime, Cabrini-Green resident leaders have added Daley and the city to their list of defendants in a lawsuit seeking to block the CHA from further demolition of high-rises.

Textbook urban planning this isn't. When the U.S. Department of Housing and Urban Development (HUD) took over the CHA in 1995, a stalemate at Cabrini-Green was the last thing anyone had in mind. "We're stuck," acknowledges Chicago Department of Planning and Development spokesman Greg Longhini.

At the heart of the dispute over Cabrini-Green is the concept of community—what shape it will take, who will shape it, and who will belong to it. This is no academic debate. It's a classic Chicago political brawl, being fought over a piece of property, just steps from downtown's office towers, that developers long have coveted. And it



Blair Kamin, architecture critic of the Chicago Tribune *and* RECORD *contributing editor, received the 1996 George Polk Award for criticism.*



Concerned about conditions at Cabrini-Green are Kimberly Davis, 17, left, and Rachella Thompson, 16, right, in a breezeway at their building on North Larrabee Street. Their ideas for the future of the project won honorable mention in the *Chicago Tribune*'s 1993 Architecture Competition for Public Housing.

A vacant lot on Division Street (opposite), where two high-rises once stood, is representative of the stalemate at Cabrini-Green. Chicago Mayor Richard M. Daley wants to put mixed-income housing on the site, but his plan has been blocked by a lawsuit filed by Cabrini-Green tenants.

mirrors those that have bedeviled other attempts to transform public housing nationwide.

"Power designs cities," the architectural historian Spiro Kostof once wrote, "and the rawest form of power is control of urban land." Indeed, the forces of the marketplace are knocking on Cabrini-Green's door, with $397,000 single-family houses already in place across the street from the project. To compound matters, the political landscape is shifting beneath the residents, as Congress enacts get-tough laws on welfare and public housing that undercut what little legal leverage they once had.

This story is typically told from the perspective of the combatants—HUD, the CHA, City Hall, the tenant leaders and their lawyers. A visit with two teenagers, Rachella Thompson and Kimberly Davis, who live at a 10-story, red-brick high-rise within the complex, opens a window onto the human side of remaking Cabrini-Green.

The inside story

To get to Rachella Thompson's apartment, No. 506 at 1161 North Larrabee Street, you walk past a dirt front yard strewn with shards of glass into a lobby (though that is certainly too grand a name for it), where a cloud of flies engulfs your head. No sign points the way to the elevator, so you ask a thin, young boy smoking a cigarette to direct you. After he does, he looks you straight in the eye and asks: "Can I have 50 cents?"

The elevator has steel walls, painted black and covered with graffiti, profane and otherwise, that has been there, Rachella says, for as long as she can remember. Once the elevator clanks to a stop, you exit and make two left turns to reach the door to Rachella's apartment. A sign on the door used to spell out "Thompson." Now, several of the letters are missing.

Rachella is 16 years old, tall, her figure filling out, which can be a dangerous thing at Cabrini-Green. Her friend Kimberly Davis, 17, is shorter and pert. The teenagers are back in high school after summer internships at a nearby children's hospital. As always, they are dealing with life at Cabrini-Green in their own creative way.

"We holler back and forth," says Kimberly, whose first-floor apartment is visible from the window of Rachella's living room, a sight line made possible by their building's U shape. "That's our phone."

While outsiders refer to the streets and buildings at Cabrini-Green by their conventional names, the teenagers and other residents use nicknames that reveal much about the project's physical and psychological landscape. Larrabee Street, outside their building, is known as "The Boulevard," though there are no graceful medians of grass and trees there. Cabrini's high-rises and storefront liquor shops that double as grocery stores flank this hardscrabble stretch of asphalt. It is the place where residents hang out on the sidewalks from morning until night. It also is where the drug dealers ply their trade, serving a clientele that comes from outside the project as well as inside. A quarter-mile to the southeast, almost butting up to the elevated tracks that separate Cabrini-Green from the wealthy Gold Coast neighborhood just to the east, stands a group of high-rises called "The Wild End," a name that suggests the particularly violent nature of the gangs that control these buildings.

Mary Beth Williams, who worked at the hospital where Rachella and Kimberly were interns, has volunteered as a "big sister" to the girls for five years. "I can afford to be somewhat oblivious to my environment," she says. "I'm not looking for potential danger in the way [that] they are."

Weeks after the charrette, on January 9, a nine-year-old girl was



Drawings from a city-sponsored charrette project a new image for Cabrini-Green. The town center includes retail stores and a police station (top). Row houses would line Larrabee Street (above left). Duplexes on West Oak Street are modeled after Goody, Clancy & Associates' Langham Court development in Boston (above right).

found in the seventh-floor breezeway of her Cabrini-Green high-rise after being viciously raped, choked, and left for dead. The high-rise is at 1121 North Larrabee Street, just south of Kimberly and Rachella's building. Rachella's aunt, Sharon Thompson, discovered the girl, whose T-shirt was stained with blood and pulled up to her chest, revealing gang symbols scrawled on her stomach with a black marker. "Another T-shirt was tied tightly around her neck," the *Chicago Tribune*'s Dahleen Glanton reported. "Her red corduroys were pulled below her waist."

The victim, identified only as Girl X, became a national symbol of sexual abuse, her story told on "Oprah" and other television talk shows. People around the country sent in more than $500,000, much of the money in $5 and $10 denominations, to two funds set up to pay for her long-term care. In April, a 25-year-old man who lives in Girl X's building, Patrick Sykes, was charged with the crime. He has proclaimed his innocence. At press time, Sykes's case was awaiting a trial date.

Rachella's mother, Runetta Thompson, 32, works part-time for Federal Express, delivering packages to downtown office buildings and the homes of business executives who live in the nearby Gold Coast. Runetta could go full-time, but that would mean working a night shift. She won't make that change because she feels responsible for Rachella and her two brothers, her sister, and two cousins who live in the three-bedroom apartment. There is no father in the home. "I refuse to do that," Runetta says of the night work. "You have to keep a good eye on your kids. If there's shooting, I'm here. I know where they are."

Apartments in public housing often are havens from the disorderly world right outside their doors, and this one, which rents for $212 a month, is no different. It is orderly and relatively neat. The cinderblock walls are painted different colors—yellow in the kitchen, for instance—instead of the usual white. Yet the stove is ancient, its burners covered with grime, and, until recently, the sink backed up and Runetta and her children had to empty it with a bucket. It took a year for the housing authority to fix the drain, Rachella says, and you sense that she is extrapolating from everyday experience when she is asked about Daley's plan for building row houses and apartment buildings at Cabrini-Green. "As long as it's for us," she says, ruefully, "it'll take 20 years."

Because her mother holds a job, Rachella and her family would

seem to be prime candidates for the mixed-income housing envisioned for Cabrini-Green. But they don't think the CHA will deliver on its pledge to include Cabrini-Green residents in the new housing. In the past, there have been too many broken promises—too many sinks not repaired, too many mailboxes gone unfixed, too many politicians who said things would improve, but never followed up. "I can't see it," says Runetta. "If they're gonna make these nice places . . . it's gonna knock you out of the box."

Community involvement

To outsiders, the rhetoric of the politicians seems to have the ring of common sense: Turn Cabrini-Green from "project" into "community." When you speak to the people who live there, however, the issue seems much more complicated. Cabrini-Green, they claim, *is* a community. It is a place with churches and midnight basketball leagues, summer picnics and block parties. When someone dies, neighbors fix food for the bereaved. When someone else can't pay the rent, residents scrape together a few dollars to help out. Here, it is said, residents accept different levels of responsibility for everyone's children, just as extended families always have.

It is a place, too, with its own political structure, a powerful group of tenant leaders, all women. As at other CHA developments, they are called, somewhat resentfully, the "queen bees." They have status. They command resident management corporations modeled after those of renowned St. Louis tenant leader Bertha Gilke. The corporations run laundromats, security and day-care centers. Their leaders work in offices at Cabrini-Green that have computers, fax machines, and potted plants.

One of them, 46-year-old Carol Steele, a big and determined woman, has lived at Cabrini-Green most of her life. To her, "mixed-income" is another word for gentrification. "We don't want to be mixed out," says Steele, who leads the resident-management corporation for Cabrini-Green's row houses, the barracks-like low-rises built in the 1940s.

The quiet, earthy president of the tenants' advisory council, Cora Moore, who is 57, vigorously denies the stereotype of Cabrini-Green. "Everyone ain't bad and everyone ain't [in] no gang," she says.

One of the errors made during the urban-renewal programs of the 1950s and 1960s was the wholesale bulldozing of inner-city neighborhoods deemed slums by Modernist planners. Both physical and social fabrics were destroyed. That helped lead to the social instability that ultimately undid projects like Cabrini-Green and Pruitt-Igoe. Now, critics say, the same mistake is about to be repeated. "The best of Cabrini-Green has been totally ignored," states the tenants' lawyer, Richard Wheelock of the Legal Assistance Foundation of Chicago. "The community that exists there has not been involved or taken into account in the planning process."

Yet, how one portrays this or any other public housing project is typically a matter of perception and politics. Tenants such as Runetta Thompson, who are trying to break the cycle of welfare and "go mainstream," have acknowledged that living at Cabrini-Green holds them back. They cannot save the money to move out when they are responsible for feeding children other than their own. They find it difficult to get up at 4 A.M. to work for companies like Federal Express when others who don't work blast their radios until the wee hours of the morning. They find it even harder to inculcate the value of work when the most visible male role models for young boys are drug dealers.

"People here are not by and large connected to the larger society," remarks Joseph Shuldiner, the executive director of the Chicago Housing Authority. "It's a community that's occurred out of necessity." Shuldiner assumed the job after the federal takeover, giving up his position as HUD's assistant secretary for public and Indian housing. He is known as "The Bureaucrat," and is far less charismatic than his predecessor, Vincent Lane, but seemingly far more level-headed and likely to pay attention to detail.

His voice rising with uncharacteristic emotion during a chauffeur-driven tour of Chicago's projects, including Cabrini-Green, Shuldiner denies that residents have had no chance to be involved in the planning process. He gave them ample opportunity, he says, to modify the development agreement for Cabrini-Green that he reached with Daley, but they refused to participate. "This is the devil they know versus the devil they don't know," he says of Cabrini-Green and its residents. He predicts the stalemate will be broken.

"PEOPLE HERE ARE NOT BY AND LARGE CONNECTED TO THE LARGER SOCIETY."

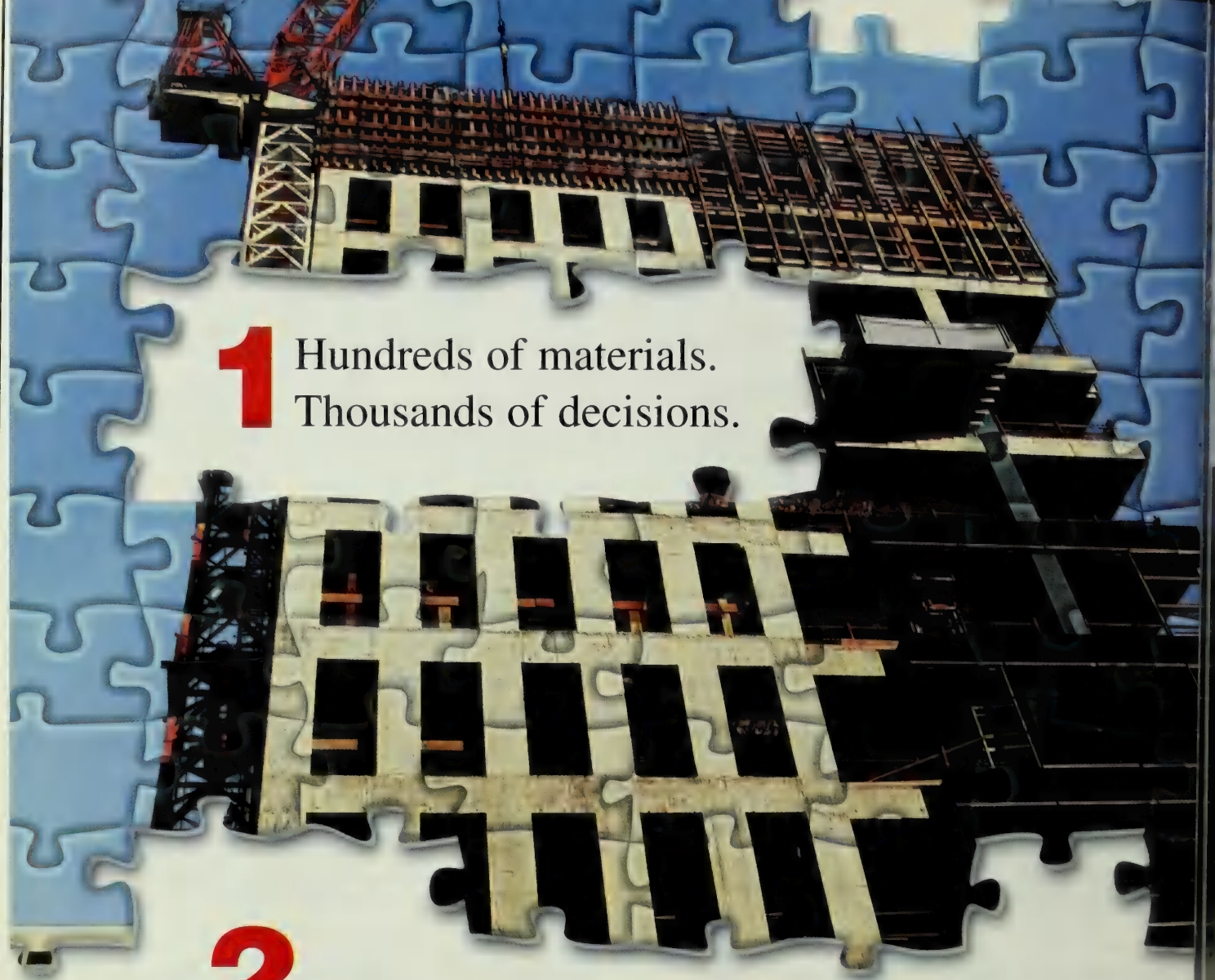
What's missing from the plan

Looking at the bird's-eye view of the future Cabrini-Green that emerged from the charrette, one is tempted to believe Shuldiner. From this perspective, the project's troubles seem to have vanished and it looks like any other big-city neighborhood. The streets are not cut off from adjoining neighborhoods. The grid that existed before Cabrini-Green was turned into superblocks has been reinstated. Small parks, even a traffic circle, delineate districts within the development. There are no more drab and boxy high-rises that stand out from the housing around them. In fact, in this view, there are no high-rises at all, even though the plan calls for 15 of the 23 Cabrini-Green high-rises to remain standing.

Fantasyland? No, answer those who participated in the charrette; the politics of the tenants' lawsuit dictated a hands-off approach to the high-rises, as well as higher densities than those usually associated

In the bird's-eye view of Cabrini-Green's future, south of Division Street, the plan's New Urbanist principles are clear, with existing superblocks replaced by the original street grid. Eight high-rises would be razed in this part of the project; 15 would remain at the area's north and south ends—though these are not shown.





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with the New Urbanism—an average of about 40 units per acre rather than the typical 20. Some blocks would get as many as 60 units per acre. There would be row houses, duplexes, and mid-rises for a total of 2,300 units on roughly 60 acres. Five of every 10 units would be for sale. Two of every 10 would be designated for lower-middle-class families. Three of every 10 would be for people eligible for public housing. Half of those units would be reserved for the so-called working poor who qualify for public housing. The targeted completion date is 2006.

The idea here is bigger than the New Urbanism notion of restoring the traditional fabric of the city. Indeed, in contrast to New Urbanist developments where home prices effectively exclude anyone who is not at least middle-class, the plan's stated goal is to include the very poor in a complete community with schools, a shopping center, parks, and the branch library. The housing authority won't build this community. Private developers and city agencies will.

As all this is being done, it is supposed to achieve two things: break down the isolated concentration of poverty that sociologists say is the root cause of the projects' woes; and attract private capital to achieve a social good in an era of limited federal spending. That, at least, is the theory.

In reality, as Cabrini-Green shows, the approach can be fraught with controversy, no matter how well-intentioned the architects and urban planners—in this case the Chicago office of Ann Arbor, Michigan-based JJR/inc., which led the charrette, and Goody, Clancy.

On the ground, rather than from the air, the view looks very different. Rachella and Kimberly won honorable mention in the *Tribune*'s 1993 Architecture Competition for Public Housing, which focused on proposals for Cabrini-Green. They are skeptical of what the professional designers have done. Their criticism is grounded in the fact that only one resident leader was invited to the charrette by city officials (she declined to attend). And it is additionally based on Daley's call for tearing down 1,324 units of public housing while building only 650 to 700 replacement units. Rachella and Kimberly also realize that because the vast majority of Cabrini residents do not have jobs, 50 percent of the new housing units will not be available to them.

"HOW MANY MIDDLE-CLASS PEOPLE DO YOU KNOW WHO WOULD MOVE IN WITH A BUNCH OF CABRINI-GREEN PEOPLE?"



Cora Moore, leader of the Cabrini-Green tenants' advisory council, with her children at the North Burling Street building where she lives. She believes that the project is already a community.

Although mixed-income developments have worked elsewhere around the country, the teenagers doubt that the concept can succeed in their project. "How many middle-class people do you know who would move in with a bunch of Cabrini-Green people?" Kimberly asks. She and Rachella envision fights over radios blasting. Even now in the project, they say, older people play the blues and "we play loud rap—it's a competition," with the stereos just getting cranked up louder. They wonder about the number of bedrooms in each apartment—it is unclear how many four- and five- bedroom units there will be in the new buildings. "Some families got like 16 kids," Rachella says.

Most of all, they worry about rents. "It all comes down to money," Kimberly says. She knows project residents who pay just $96 a month in rent. If that bill goes up to $350 or so, they won't be able to afford it. "That's how they're gonna get rid of us."

The teenagers are not the only ones who have problems with the plan. Cora Moore, the tenants' council president, predicts that the supermarket in the new shopping center will cater to a more upscale middle-class clientele. Most residents won't be able to afford to do their shopping there, she says. To Moore, the shopping center is part of the yuppie culture of Clybourn Avenue, where Volvos, Saabs, and BMWs fill the strip-mall parking lots. Indeed, the mix of uses that emerged from the charrette are physically segregated, as is typical in suburbia.

What Moore envisions sounds more like the southern towns from which the New Urbanists drew inspiration for Seaside, Florida—places where screen doors slam in the corner café and neighbors know one another. "How about a music store, a shoe store, people who fix nails, or people who do hair?" she asks. What about job training centers, day-care centers, places that will help residents get off drugs? "*That's* a community."

As always, Shuldiner has a reply. All those things sound good, he

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Larrabee Street, known as "The Boulevard"—the place "to see and be seen"—among Cabrini-Green tenants, is to be transformed into an enclave of row houses and apartment buildings.

says, but the primary goal of the redevelopment is to build as much housing as possible. Besides, there are plans for a community center that will provide what city officials call a range of neighborhood services. What those services will be, however, has not been defined.

The dilemma

As a result of its prize location, Cabrini-Green seemed like the perfect place to showcase HUD's effort to reform public housing. For now, that very asset seems to be working against it. At first, the prospect was, "If not here, then where?" Now, it's more like: "Everywhere but here." At other CHA projects, such as the Henry Horner Homes, residents don't appear to fear the minority working-poor families brought in to make their developments mixed-income. What's unique about Cabrini-Green is that the poorest of the black poor live right alongside the rich and white. Partly as a result, the residents have a siege mentality and the process is going nowhere.

How do you break the stalemate? How do you get rid of (or reform) the bad at Cabrini-Green and keep the good? How do you plan with a fine-toothed comb and not a sledgehammer?

One scenario is that the tenants' lawsuit will drag on indefinitely, forcing Daley's planners to tinker around the project's edges, as they are doing now. The mayor himself has ample reason to take a "go-slow" attitude at Cabrini-Green. For getting ahead of its politics could lead to violent confrontation, which is exactly what Daley doesn't need as he prepares to face African-American U.S. Bobby Rush, his likely opponent, in a 1999 reelection bid.

And Cabrini-Green can blow up at any minute. That became clear on March 5 of this year; the project erupted in gunfire when, during a drug investigation, a CHA police officer shot an unarmed resident. After the shooting, at least one sniper in a Cabrini high-rise fired at police—and the police fired back. Following the confrontation, hundreds of residents screamed at the officers, telling reporters at the scene they were being treated like animals.

The second scenario is that residents will tire of the stalemate and realize that they have no choice but to cut a deal; after all, they're the ones who must live with the project's horrid conditions. And there are those who think the resident leaders in the high-rises, where conditions are worst of all, will split from the leaders of the row houses, where the environment is more tolerable.

If that were to happen, several possibilities could open up. The charrette team could run another session, this one with resident leaders. Community-based, nonprofit developers might be brought to work with politically connected housing developers to ensure that the plan grows directly from residents' needs, rather than being imposed from outside.

All that seems like a dream just now, and an essential part of the stalemate is the conflict between flexibility and guarantees—tenants, having been ignored so often in the past, want their future assured, while the city and the CHA, both short of capital, prefer a certain latitude in order to succeed in the marketplace.

These are the new tensions inherent in this new brand of urban renewal, and they will require an extraordinary balancing act. The needs of Cabrini-Green's residents must be met, along with those who will make the project a mixed-income community. The art of this deal must be to avoid a developer land-grab, using private funds to achieve the public good. ■

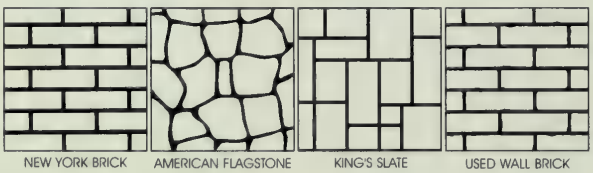
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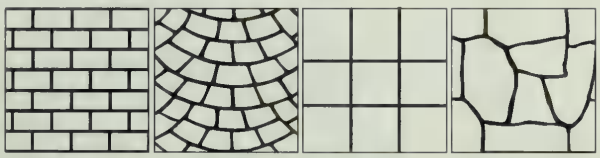
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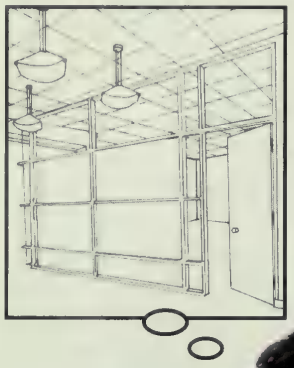
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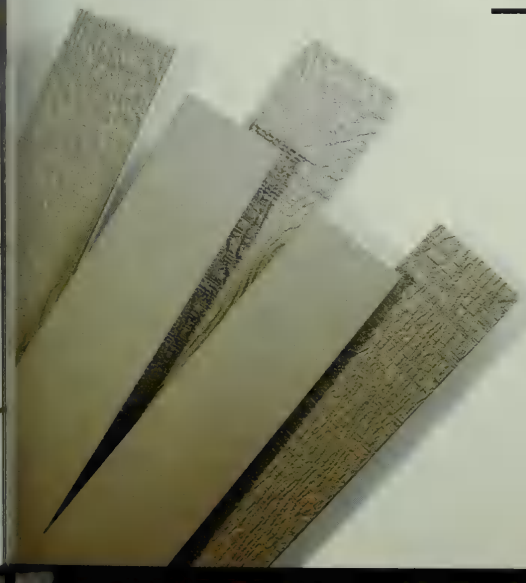
Photo location courtesy of architect Thomas Gordon Smith, chair of the School of Architecture, the University of Notre Dame, and Stephen Warberg, custom home builder.

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CIRCLE 38 ON INQUIRY CARD

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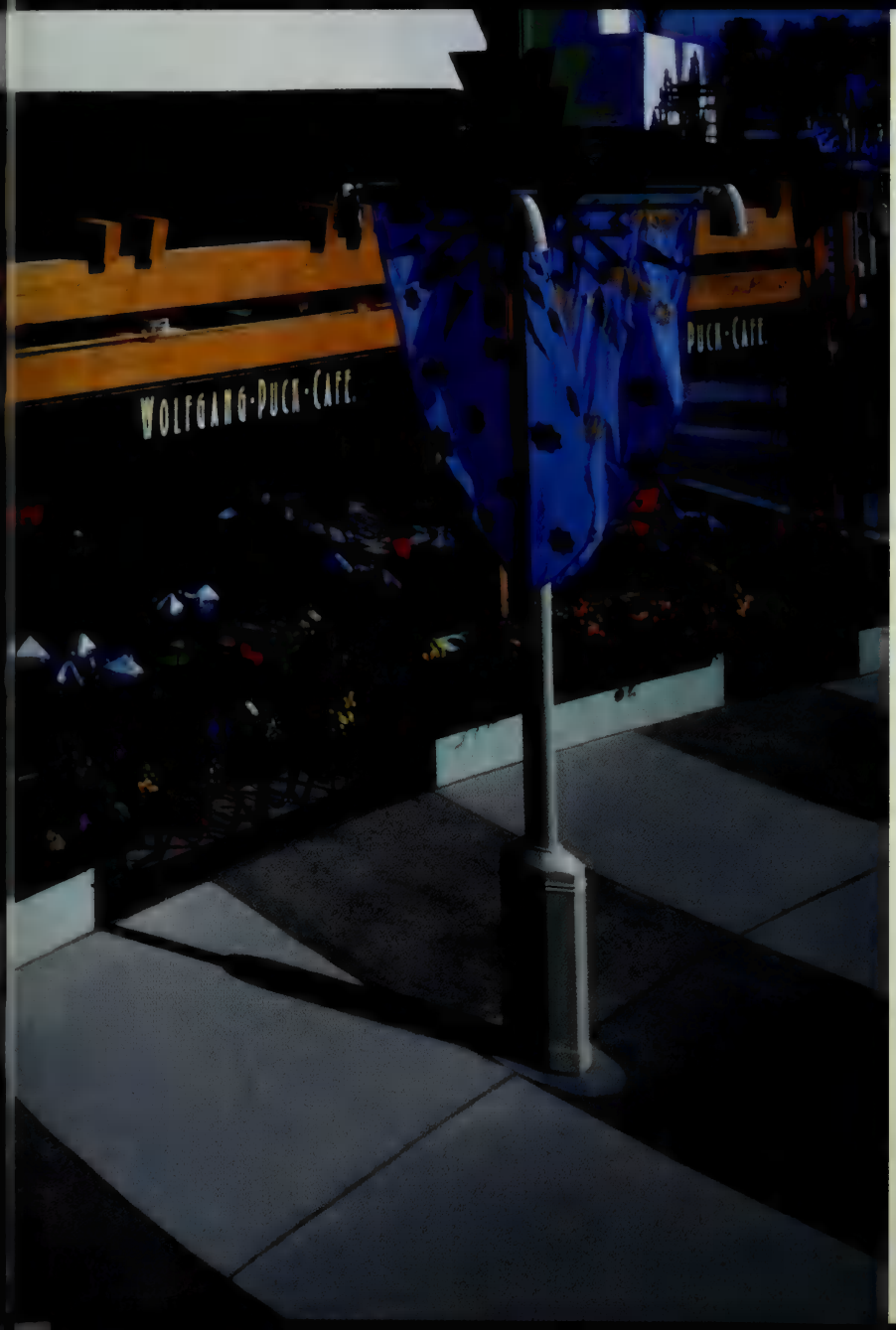
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CIRCLE 39 ON INQUIRY CARD



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CIRCLE 40 ON INQUIRY CARD

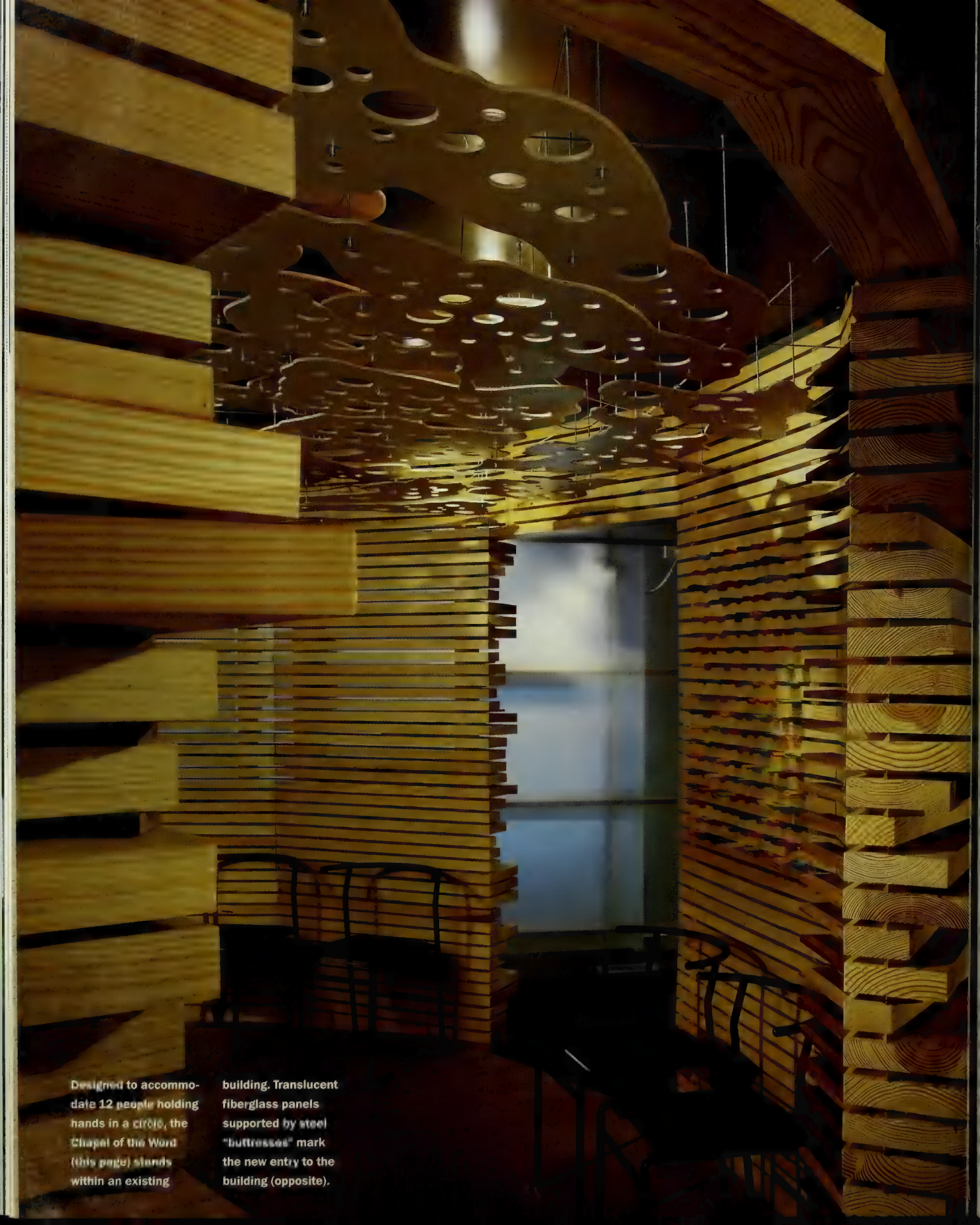
Record Interiors 1997

Play is a word frequently used by Milan-based maestro Achille Castiglioni in discussing his work (pages 90–95), and his attitude is emblematic of this year's Record Interiors. *"Play is an important part of life. Basically all things have a playful side," he says about his lighting, furniture, and tabletop objects, which are clever, technologically sophisticated, easy to use, and often witty in form, color, or reference. That's not to say that he doesn't take his work extremely seriously. In fact, at 79 years old, Castiglioni is one of the pioneers of what's come to be known as "Italian Design"—a quasi-official "state" style that during its heyday seemed to enjoy world dominance in matters of taste. Perhaps not as well known in the United States as Memphis founder, architect, and industrial designer Ettore Sottsass, who is also about to celebrate his 80th birthday, Castiglioni teaches us less about authorship than about the pleasures of a useful invention. On the eve of a retrospective of his work at New York City's Museum of Modern Art, organized by associate curator and former Castiglioni student Paola Antonelli, we take a look back at some of his designs and hear his thoughts on his still-active career. What's most striking is his modest view of his role in shaping the domestic landscape. In speaking of the familiarity of his objects, Castiglioni reflects, "I often find myself thinking that my designs might perhaps have always existed, as if they had somehow been designed by other people." Though surely at a different point in his career, 41-year-old furniture designer Roy McMakin shares Castiglioni's attitude that his work is the culmination of many seemingly insignificant decisions. "I'm not really interested in stretching the envelope—designing* the *new chair," says McMakin in the interview here (pages 118–23). "I'm interested in the little tiny decisions and how they have meaning." And he, too, broadens the definition of who a designer is and what he or she does. Unlike Castiglioni, who is trained as an architect, McMakin has a background in art. It's his compelling sense of space, not his formal education, that has made him a de facto architect. Along with these two interviews, this issue includes interiors projects that, in addition to other themes, exhibit a sense of serious fun.*

—Karen D. Stein

This issue features work by the following architects and designers:
1. David Woodhouse Architects
2. Gabellini Associates
3. Achille Castiglioni
4. Randy Brown
5. Samuel Anderson Architect
6. Dean/Wolf Architects
7. Valerio Dewalt Train
8. Roy McMakin





Designed to accommodate 12 people holding hands in a circle, the Chapel of the Word (this page) stands within an existing building. Translucent fiberglass panels supported by steel "buttresses" mark the new entry to the building (opposite).

Inserted into a jumble of buildings, the CHAPEL OF THE WORD by David Woodhouse is a calm refuge in a discordant world.



by Clifford Pearson

1. *Chapel*
2. *Passageway*
3. *Plexiglas display*
4. *Visitors' center*

Light is the presence of God, a manifestation of His Divine Word. That's what the client tells you. And when the client is the six-foot-four-inch Thomas Krosnicki, the charismatic mission center director of the Divine Word Missionaries, you believe too. Krosnicki has given you a tight $2 million budget to convert nearly 10,000 sq ft of ad hoc space into a visitors' center, lounge, and chapel, and told you he doesn't want any materials that even hint of luxury. "No material is too humble for the Lord," says Krosnicki. On one occasion you suggest a little marble for a small section of floor in the chapel. Krosnicki replies firmly, "It is hard to ask for money when you're standing on a marble floor." You're left with plywood, pine timbers, Plexiglas, and light. Light—the most precious commodity—is free.

THE CLIENT SPEAKS IN METAPHORS, SO THE ARCHITECTURE DOES THE SAME.

"Krosnicki speaks in metaphors and parables, so we treated the building in the same way," explains architect David Woodhouse, AIA, who designed the chapel and visitors' center at the sprawling Divine Word Missionaries campus in Techny, Illinois. Simple materials carefully assembled, for example, remind visitors of the virtue of craftsmanship and honest work, while new elements inserted into an existing building allude to missionaries bringing new ideas to faraway cultures. Woodhouse's 11-person firm was hired because of its previous work with Abrams, Teller & Madsen, a firm brought in to design exhibits in the visitors' center. While Woodhouse's chapel is completed, the exhibits have yet to be installed.

About 100 years ago the Divine Word Missionaries bought most of the land in rural Techny and started erecting an eclectic complex of buildings for their dormitories, Bible-printing operations, and world offices. (The organization has missionaries in remote parts of the world, translating the Bible into myriad languages and forms—even comic books.) Today Techny is rapidly suburbanizing and the missionaries are supporting their worldwide activities by selling tracts of land to companies such as Kraft–General Foods for corporate headquarters and to developers for "premier" gated communities. The envelope that Woodhouse had to work within was a set of three connected buildings put up at different times with different floor levels, materials, and design sensibilities. In the 1950s one of these buildings was wrapped in "a kind of Madame Butterfly pseudo-Japanese" teahouse skeleton of posts and beams, says Woodhouse.

Rather than trying to bring order to this exterior, Woodhouse left it "a cacophony" of styles, adding a 600-sq-ft, two-story entry pavilion with a corrugated fiberglass canopy and a set of steel "buttresses" supporting translucent fiberglass screens. The new entry, which faces the main street running past the campus, gives the building a "roadside presence," explains Woodhouse.

Inside the entry, light comes from above, via clerestory windows set between planks of rough pine. A simple plywood reception desk and slate floor introduce the palette of materials used throughout the project. "All the materials are naked, nothing is painted," notes Woodhouse.

The visitors' center that extends to the north of the entrance is converted space that originally housed a gift shop, now moved to a different part of the building, and a courtyard, now *(text continues)*

Project: *Chapel of the Word, Divine Word Missionaries Visitors Center Techny, Illinois*
Owner: *Divine Word Missionaries*
Architect: *David Woodhouse Architects—David Woodhouse, AIA, principal-in-charge; Marsha Woodhouse, interior designer; David Poorman, Rand Ekman, project team*
Engineers: *S+I Consultants (mechanical); Beer Gorski Graff, Ltd. (structural)*
Consultants: *Schuler & Shook, Inc. (lighting); Hanscomb Associates (cost estimating); Jerzy Kenar (sacramental furnishings design and fabrication)*
Contractors: *Service Construction (general construction); Hank Prekop (chapel ceiling)*



The chapel's flooring is coir matting and slate. The wooden altar and priest's chair were designed and built by sculptor Jerzy Kenar.

Double-hinged doors can swing into place to close the passageway from the visitors' center (below). Doors that move like louvers can close off the lounge from the chapel and passage (opposite top).

enclosed. When they are completed, exhibits will showcase the religious order's missionary activities in some 60 countries around the world. Once again, most daylight comes from above—from clerestories around the new roof over the old courtyard and from four angular skylights that will eventually have floor-to-ceiling shards of translucent Plexiglas installed beneath them and engraved with words from the Bible.

After walking through the spacious exhibit area, visitors come to a gently sloping passageway that negotiates the different floor levels of two of the existing buildings. The passage has canted plywood walls that angle toward the heart of the project—the Chapel of the Word, designed for just 12 people and often used for solitary prayer. Two sets of four doors, attached to each other by rods so they move together like louvers, can open the chapel to the adjoining lounge/conference room. Inserted within the existing building as a freestanding structure, the chapel is defined by rough basketlike walls of pine timbers and cherry spacers. The pine boards projecting from the walls at irregular angles and lengths represent the messy realities of the everyday world, says Woodhouse.

Inside the chapel the walls are smooth and ordered—making reference to the Lord's realm—and narrow spaces between the timbers allow shafts of light to slide in. On one section of wall, prayers written on colored pieces of paper inserted between the wood slats create a makeshift filter for light. If, as Krosnicki says, the chapel is where people and God come together, then the colored prayer wall is a manifestation of that meeting.

The chapel's ceiling is a cluster of freeform plywood "clouds" with openings in them to allow light from MR16 halogen spots to shine through. Woodhouse originally thought he would use translucent plastic for the clouds. But when he realized how close the halogens would be to the suspended celestial stand-ins, he worried about plastic melting under the heat. Extra distance between lights and clouds would also have produced more shadows on the floor, an effect the architect would have liked. As it is, the backlit plywood forms create an illusion of depth and animation that enhance the spiritual character of the space.

Keeping the chapel abstract in form allowed Woodhouse to evoke the architecture of very different cultures. While its walls allude to the circular African huts in which Divine Word missionaries often preach, its ceiling recalls the swirling geometries of a Roman Baroque church.

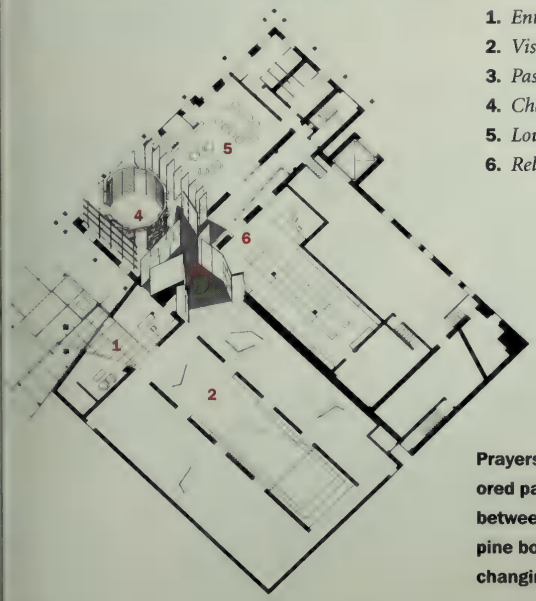
"The whole building is about capturing light and making it physical," says Woodhouse. The project's screens, insertions, and materials are all means to that end. ■

Manufacturers' Sources
Aluminum storefront windows: *Active Industries*
Built-up roofing: *Koppers Industries*
Clear and translucent insulated glazing: *Active Industries*
Skylights: *Imperial Glass Structures*
Fiberglass panels: *Resolite*
Plexiglas panels: *Rohm & Haas*
Slate flooring: *Pyramid*
Chapel chairs: *Luminaire*
Sacramental furnishings: *custom by Jerzy Kenar*
Chapel downlights: *Tech Lighting*
Recessed downlights: *Halo*
Exterior lights: *Lumark*









1. *Entry*
2. *Visitors' center*
3. *Passageway*
4. *Chapel*
5. *Lounge*
6. *Religious goods store*



Prayers written on colored paper are slipped between the chapel's pine boards to create a changing mosaic.



Red walls catch the attention of passersby on Geary Street, a traffic artery (below). The 1907 facade was restored (opposite).

Known for black and white Minimalism, Michael Gabellini gets colorful at **ULTIMO,** a shop in downtown San Francisco.



by Karen Stein

Michael Gabellini, AIA, is known as something of a company man in architectural circles. Since completing fashion designer Jil Sander's showpiece Paris boutique, the first free-standing shop outsider Sander's native Germany [RECORD, September 1993, pages 90–95], the architect has designed some 45 Jil Sander outposts for the Hamburg-based clothier. With the recent unveiling of her menswear line, Gabellini says his output for Sander will now increase to more than 20 projects around the world per year, a quantity made even more striking when considering his New York City office staff numbers 20 and he and his high-profile client are known for an almost fanatical attention to detail and craft. These days, however, Gabellini is extending his reach, not only to other fashion companies, but also to new materials and colors.

A case in point is the Ultimo shop in San Francisco, recently opened on Geary Street, a bustling downtown shopping artery. Gabellini's client, Joan Weinstein, owns, among other designer boutiques, a Jil Sander store in Chicago designed by Gabellini. When Weinstein decided to open a Jil Sander shop on Maiden Lane in San Francisco in 1996, Gabellini was the natural choice. Less obvious was Weinstein's decision to take advantage of a potential internal link between the Sander store (in a building that is known to film aficionados as the location of a pet store in Alfred Hitchock's movie *The Birds*) and another building, which fronts Geary Street, to open a West Coast version of her Chicago design emporium, Ultimo.

The Ultimo store in Chicago presents clothing and accessories culled from the collections of some 30 designers and assembled in an almost curatorial fashion. The shop's reputation rests on an interpretation of the current fashion scene offered to its customers: Weinstein and her buyers review what is available, choosing items that are considered most appropriate for the "Ultimo customer," who Weinstein describes as "very urban, very sophisticated." When Ultimo opened in a former antiques shop 28 years ago, a lack of funds shaped its initial design: red-painted walls draped in African fabric. "The fabric was $2.50 per yard. That was what we could afford then," recalls Weinstein.

Though the business has flourished over the years, and Weinstein has since opened other shops in Chicago, she now answers to a board of directors. The board asked three prospective designers to present ideas for the San Francisco shop. Gabellini was chosen because he responded to the retailing attitude of the company, says Weinstein. "I thought he understood Ultimo—the drama and theater of it," she recalls. "And he's easy to work with," which is no small point for someone who spends a good deal of time accommodating what may seem to be conflicting viewpoints among strong-willed, visual-minded fashion designers. Of the meeting of minds between architect and client, Gabellini says: "I managed the design of the shop. She managed the relationships with the clothing designers."

ULTIMO PRESENTS CLOTHING IN AN ALMOST CURATORIAL FASHION.

Project: *Ultimo, San Francisco*
Architect: *Gabellini Associates—Michael Gabellini, AIA, design principal; Dan Garbowit, AIA, managing principal; Carmen Carrasco, AIA, project architect; Thom Burns, Lily Chiu, Ben Fuqua, Vincent Laino, Elmer Lin, Cathy Jones, Lisa Monteleone, Lily Rutherford, project team*
Architect of Record: *Dennis R. Smith & Associates*
Engineers: *John Rutigliano (structural, base building); Thorton Tomasetti-Cohen Barrieto Marchetas (staircase); Glumac International (M/E/P)*
Consultants: *Focus Lighting, Inc. (lighting); Swenson Stone Consultants (stone); Donald Kaufman Color (color)*
Construction Manager: *Dinwiddie Construction Company*

1. *Entry*
2. *Showroom*
3. *Cash/wrap*
4. *Fitting room*

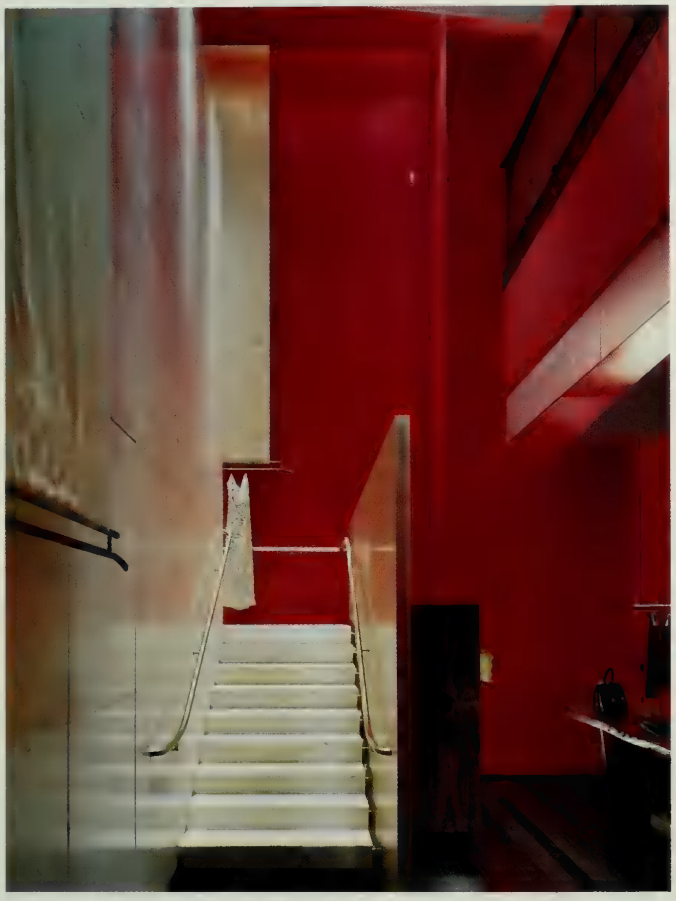
The first-floor plan shows the internal connection between Ultimo and the Jil Sander shop on Maiden Lane.





Silk banners and walnut hang bars enliven the space and display special items of clothing (below and right). Hang bars in the vitrines are suspended by static line, used in mountain climbing. The furniture was made by George Nakashima Woodworkers.





Weinstein's architectural mandate was remarkably brief: "She said, 'I don't want a white space,'" recalls Gabellini. But her mission for the shop—"I want to dazzle them"—was as elusive as it was compelling. For Gabellini, the challenge was to capture the bazaarlike feeling of the Chicago Ultimo with an updated vocabulary of forms and materials.

The resulting concept of a painted box relies on what has become so much a company signature that there now is a paint color named after the company: "Ultimo Red." To translate the idea of an emporium into three dimensions, Gabellini devised a spatial layering of

THE CHALLENGE WAS TO CAPTURE A BAZAARLIKE FEELING.

terraced display areas, each devoted to an individual designer or fashion concept. Within the 3,500-sq-ft space, red walls and floating ceiling planes convey a sense of drama and movement. The staircase is wrapped in a cream marble with honey-colored veins, and bronze panels act as spatial partitions. The colors and forms contrast with the white and gray shades of the adjacent Jil Sander shop.

Gabellini likens his approach to directing a play with a large cast, and he says his interest in set design influenced the lighting of the shop. Claiming that many shops nowadays are overlit in an attempt to mimic daylight, he points out that this one, at a level of 3,500K, is slightly cooler than his Jil Sander shops, because of the warming effect of the red paint. For Weinstein, a sense of warmth is key to choreographing the type of shopping experience she wants Ultimo to represent. She explains: "[In the shop] you see customers enjoying themselves, trying clothes on, commenting on each other's clothes," as if sampling a friend's closet. In fact, the walnut furniture looks residential. Everything from tables to cabinets was made in collaboration with Mira Nakashima Yarnall, who has continued the studio of famed woodworker George Nakashima since her father's death in 1990. "When you like this kind of shopping experience, you're hooked," says Weinstein. She, too, seems hooked—on Gabellini, who is just completing an Ultimo shop in Dallas.

To oversee so many retail projects at once, Gabellini's office works with the same group of suppliers for lighting, furniture, and finishes. "If we want to experiment, we can easily modify details," he says. And how did this experiment in color and retail concept appeal to Gabellini? "It was liberating," he says. "I've never thought of myself as a Minimalist," says the architect, referring to the label often attached to his work. "I think about purity." ■

Manufacturers' Sources

Custom bronze entry doors, interior door frames and closers, interior bronze walls, and guardrails: *Blakeway Metal Works*

Custom marble door; marble wall, stair: *Furrer, SpA (Rosa Portugalo)*

Drywall: *Golden Gate Drywall*

Walnut veneer casework: *Pucetti Wood Products*

Paint: *Tnemec Paints, Donald Kaufman Color (Ultimo Red)*

Walnut veneer paneling: *General Woods and Veneers*

Bluestone counters, plinth: *Hedelberg Bluestone and Marble*

Wenge wood salon floor: *General Woods and Veneers*

Walnut custom furnishings (wrap cabinet, bench, tables, display slabs, ottomans): *George Nakashima Woodworkers*

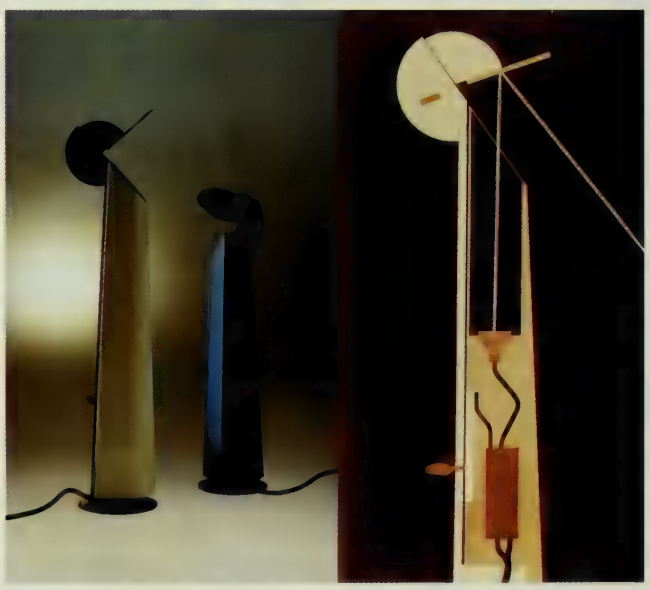
Salon lighting: *Luminary Tools*

Vitrine lighting: *Litelab*

Milanese design maestro **ACHILLE CASTIGLIONI** discusses his career as MoMA mounts the first U.S. retrospective of his work.

by Francesca Picchi

The work of influential Milanese architect and product designer Achille Castiglioni will be the subject of a retrospective exhibition, "Achille Castiglioni: Design!" at The Museum of Modern Art, New York, from October 16, 1997, to January 16, 1998. Castiglioni, 79, Marco Zanuso, 81, and Ettore Sottsass, Jr., 80, are often regarded as the pioneers of a new kind of Italian design, one that fuses modern materials, mass-production, and an antirationalist attitude and aesthetic. These elder statesmen, who continue to be active, are thought to be the seminal figures of postwar Italian—if not international—design. "Castiglioni's designs are clever, playful, and easy to understand," says the exhibition's organizer, Paola Antonelli, associate curator in MoMA's Department of Architecture and Design, "and they are timeless because his design method is not about style. It is about common sense, clarity of purpose, memory, curiosity, observation, wit, a willing client, experience, manipulation, perfectionism, luck—and talent, of course. I cannot imagine a better way to explain the marvels of design to a wide audience." In this country, Castiglioni is best known for his inventive lighting designs, the most familiar of which is the Toio, a fishing-rod-thin floor lamp with an automobile headlamp as its source, designed in 1962 and produced and distributed by Flos. The Toio, along with other products designed by Castiglioni and his elder brothers, Livio and Pier Giacomo, with whom he worked until their respective deaths in 1968 and 1979, contains many of the concepts that he has always explored and expressed in his work. This past summer at RECORD*'s urging, writer Francesca Picchi met with Achille Castiglioni in Milan to discuss his work and his thoughts on the practice and direction of design today.*



Architect Francesca Picchi is a contributing editor at Domus. *The interview was translated from the original Italian by Rodney Stringer.*

Architectural Record: Your work has influenced generations of younger designers, who consider you to be a master and your designs to be historical reference points. Who are your masters, and how did you and your brothers first get into design?

Achille Castiglioni: Ever since our student days [at the Milan Polytechnic], my brothers and I looked up to the masters of the Modern movement and the Bauhaus. Then, toward the end of the 1940s, the work of Charles and Ray Eames became known in Italy. We felt close to the spirit expressed by them, so it was only natural for us to start thinking in terms of mass production. Another great influence has been avant-garde art movements, such as Futurism and Dada, as well as the work of abstract painter and sculptor Lucio Fontana [who established the idea of Spatialism during the late 1940s]. Our father was a realist sculptor who passed down to us his own great passion for art—which included those movements that had been founded in defiance of tradition and academicism. It has to be remembered that the early postwar years in Italy were a highly experimental period. The relationship between design and industry was open to great debate; there was a great deal of very animated discussion. The Triennale [in Milan] was an exciting meeting place. It was a time when one always found young architects working together with young entrepreneurs. Since very few houses were being built, it was a perfectly "natural" relationship.

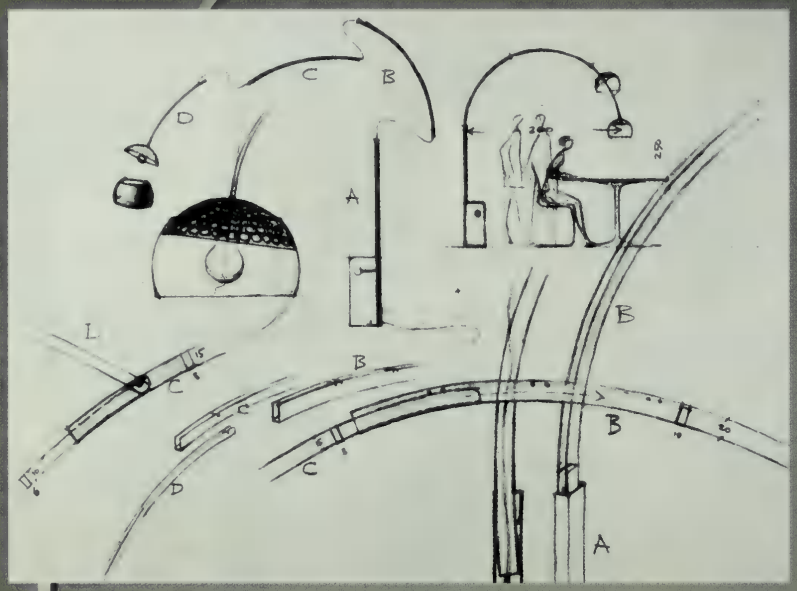
I think that in many ways the really lucky thing about our work, and Italian design in general, is that we had a very free, "disenchanted" relationship with technology. A contributing factor may perhaps have been that it didn't cost very much to carry out experiments, whereas today you need the backing of a big corporation and a heavy financial commitment. Fortunately, in the larger Italian companies there are still



Achille, Pier Giacomo, and Livio Castiglioni, 1962 (left to right).



Objects in the Milan studio (above). Achille Castiglioni, 1997 (right). Grand Prix flatware, a 1960 design, now made by Alessi (far right). Gibigiana 1-2 table lamp, and in section, a 1980 design manufactured by Flos (opposite).



A familiar and widely imitated lamp is the Arco, designed in 1962 by Achille and Pier Giacomo Castiglioni for Flos. Achille Castiglioni is shown in a historic photograph surrounded by his designs, including the San Luca armchair, the Arco lamp, and the Rocchetto table (inset below).









The Ipotenusa desk lamp, designed in 1975 and manufactured by Flos (left). The Cacciavite table, designed in 1966 for Bernini by the Castiglioni brothers and later manufactured by Zanotta, shown assembled and disassembled (below left). The RAI Pavilion at the 1957 Milan Trade Fair (below), by Achille and Pier Giacomo Castiglioni.



gifted craftsmen with whom it is easy to work, which is a great boon when you're trying to develop something.

In many ways the idea of industrial production for me and my brothers was associated with the invention of the radio set. All our theories on the meaning of commodities, and in a sense, on the actual concept of design itself, sprang from our passion for the radio. One forgets today the extraordinary impact that the radio had on people's lives; they were absolutely transformed by it. At that time the radio was generally treated as a piece of furniture rather than as an apparatus. We, on the other hand, were keen to express a "light" image of technology, to convey a feeling of pleasure and entertainment, while freely alluding to other instruments of communication, such as the telephone.

Record: You often give lessons to your students [for many years Castiglioni was on the faculty of the Milan Polytechnic] with the aid of products originating from an anonymous tradition, which you present as models of a sound approach to design. What latest additions have joined your remarkable collection of artifacts?

A.C.: Well, it's not so much a collection of objects as things charged with intelligence that happen to arouse my curiosity, some of them verging on kitsch. Others, like a milking stool or a pair of scissors, are items that I consider to be "perfect." Over the years these artifacts have grown in number, but I wouldn't actually describe them as having the systematic character of a collection.

For example, I have just been given what seems to me to be a rather intriguing electric razor, made by a small French firm that markets camping equipment. The idea of being totally independent from electrical power sources led to the invention of a simple and ingenious rotor mechanism. When a cord is pulled sharply, the razor is activated, in the same way that a child's spinning top works. Just enough energy is generated to power the blades of the razor. Now even if all this is in service of something that is not really indispensable, the little gadget nevertheless represents a truly honest invention. Furthermore, its self-generated-energy feature relies on a simple, familiar action similar to that necessary to start an old-fashioned outboard motor. Which reminds me of another item that has this quality: a small flashlight containing a bicycle dynamo [manually cranked generator]. It dates from World War II and is made entirely of aluminum, enriched by all sorts of details.

These are the kinds of objects I like to show to students, because I think their example assists in encouraging good design. They help students to understand the value of all the parts that go into the making of a good product. These "anonymous" designs contribute to an understanding, first and foremost, of what purpose a product really has to serve.

Record: Your designs always show a very conspicuous desire to bring the concept of furniture [mobile in Italian] back to its most literal meaning. Your products feature signs of mobility (handles, grips, zippers, or hinges, which allude to the idea of transformation); they are often portable and





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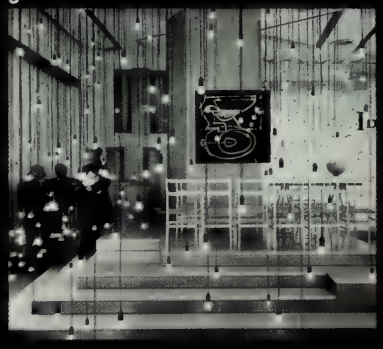


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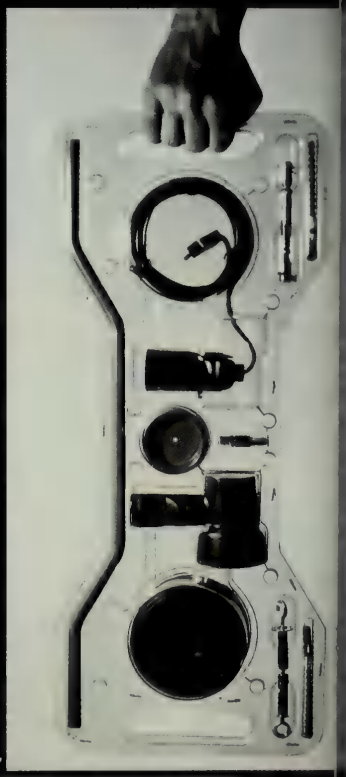
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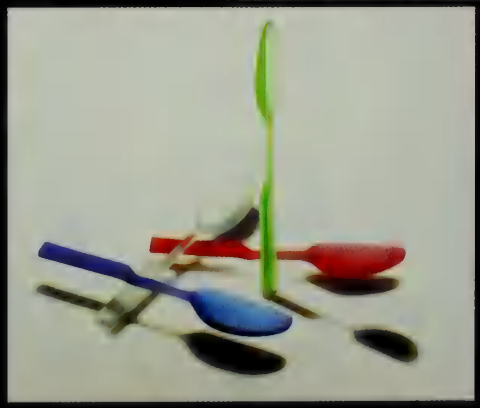
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1. Brera S suspension lamp, 1992, produced by Flos.
2. Flos-made Fucsia pendant lamp, 1996.
3. Alessi cruet set, 1980, with salt shaker/cellar, 1981.
4. Alessi fruit bowl/colander, 1995.
5. Sala Espressioni display, Ideal Standard showroom, Milan, 1964.
6. Children's camera prototype, designed for Ferrania, 1958.
7. Parentesi lamp of 1971, designed by Castiglioni with Pio Manzú for Flos, 1971, shown packaged.
8. "Sleek" plastic mayonnaise/jam spoons, 1962, made by Alessi.



7





8

beautiful even when disassembled and packaged. What do you think is a product's real essence?

A.C.: I have no absolute answer to that. Finding out whether a product is made in one way instead of another helps us to grasp the inner logic of any design. I'm not interested so much in style as in method, in trying to understand the way I have to design in relation to the product's real and intended use. For instance, if while we've been talking you haven't noticed that the lamp on this table is switched on, I consider that a success. I am pleased because of the fact that its presence has been almost abolished, enabling us to forget it. Although it was very much "designed," this lamp is not arrogant or ostentatious, whereas I get the impression that the attitude of design today is precisely to overemphasize form in a product.

The lamp in front of us here (the Ipotenusa, see page 93) sprang from the desire to intrude as little as possible on the tabletop, and not to dazzle the eyes or get in the way of two people talking across the table. I reduced the rod to a minimum. Then, by using a halogen bulb that needs a transformer, I decided to exploit this component as a counterweight to stabilize the whole. Eventually I realized it would need an enormous box for transportation. So it had to be collapsible. Then I had to make sure this wouldn't be dangerous in any way and would comply with electrical safety standards. We thus used a hi-fi radio jack-plug.

"I OFTEN FIND MYSELF THINKING THAT MY DESIGNS MIGHT PERHAPS HAVE ALWAYS EXISTED, AS IF THEY HAD BEEN DESIGNED BY OTHER PEOPLE."

So you see, this again is a game of transferring elements belonging to "industrial" products, or things already in production, to completely different commodities, as is the case of the car headlamp used for the Toio lamp or the tractor seat of the Mezzadro stool. The play of transposed functions expresses the freedom to pick up hints and applications everywhere, and it also serves to mock convention and conformity. Concerning the shape of the Ipotenusa, there are allusions in the shade which remind us more, say, of the visors traditionally worn by American newspaper pressmen than of the helmets worn by polo players. It is references like these that help to kindle a certain bond or dialogue between the person designing the product and its user. I often find myself thinking that my designs might perhaps have always existed, as if they had somehow been designed by other people.

Record: What is your personal idea of a home?

A.C.: I think our idea of a house "alla Castiglioni" is the one we created with the exhibition design at Villa Olmo in 1957; as far as I'm concerned, it still holds. At that time we put together all sorts of different things, designed by us but also borrowed from current production. Those products expressed our feelings about freedom of behavior in living, and about how things have to be usable in a manner free from formal or behavioral preconceptions.

The idea was that of an environment designed by overlapping elements that were different in form but also in origin. For example, we placed a fountain in a formal living room. Our view was that the fountain was there to provide water for flowers or to paint with watercolors. We hung a television set from the ceiling using a very simple pulley system, so that the screen could be kept out of sight when turned off. There were pieces from the anonymous tradition, too, like the steamer chair, which we used to indicate the idea of stackability/portability. There were also designs like Mezzadro or Sella, in which we had taken a tractor seat and a bicycle saddle out of their original contexts to create chairs for inside use.

At the Villa Olmo we tried to display a certain freedom, with a sprinkling of amused irony, to make a statement that was a negation of the thinking behind the domestic interiors designed at the time.

Record: Do designers exercise a personal visionary capacity, an ability to foresee the future? What do you see for the next millennium? How do you picture the house of the future?

A.C.: The first picture that comes to mind is that of an outdoor life unobstructed by needs. On the other hand, I think people want to build themselves a cocoon and surround themselves with chattel. I like to think that in the future fewer things will be necessary to achieve a freer lifestyle, less dependent on technology. I imagine that technology in the future will allow houses to be conceived as the integration of self-sufficient, single spaces and convivial places. In a sense, it will be possible to enclose all life functions in one space, like a monk's cell. But the inhabitants of these monastic dwellings will be able to reach out via media communications.

Record: You have always shown a certain natural inclination to design object-characters or object-caricatures. I'm thinking specifically of cartoonlike creations like the Bibip lamp of 1977. What are your main sources of inspiration?

A.C.: Everyday life: the streets, the movies, television, cartoons. That's where one learns to critically observe commonplace gestures and conventional attitudes, the set and stale patterns of people's lives.

Record: In what object do you most clearly see yourself?

A.C.: The electric light switch, because it is an object reduced to the absolute minimum. At the same time it has the correct shape to be held comfortably in the hand and to meet international electricity safety standards. It is conceived to be touched, as indeed an article that has to be groped for in the dark should be. Above all, the light switch is not looked upon as a designer product—it's sold by electricians. It is a product I have grown fond of because I come across it everywhere.

Record: When you design something that's to be mass produced, do you think of the atmosphere in which it is destined to live?

A.C.: Mainly I think of the people who'll be using it. Sometimes I think I might almost like to follow the product through to its end user; I'd like to spy on that person to see how he or she behaves and interprets the product's various uses. I am interested in sparking a sort of reciprocal curiosity between designer and consumer by trying to communicate to him or her a certain pleasure. The best designs are the ones that manage to make contact, that spring from the will to set up even a small exchange with the unknown character who will use that product. I see products as if they were the hub of a network of relations with our environment, affections and mutual appeal.

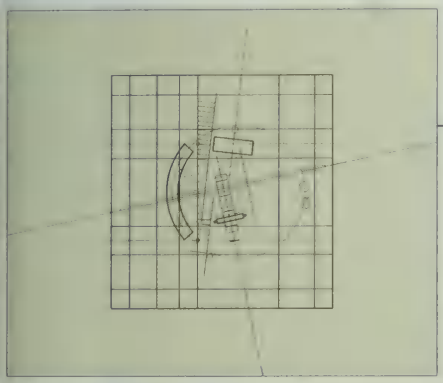
Record: Your designs are cheerful and ironic, even when they are technologically sophisticated. You have never projected a dull image of technology as something that is incomprehensible and off-putting, represented by black, square, cold products. What actually amuses you most?

A.C.: Playing. I like all games. Play is an important part of life. Basically all things have a playful side. ■



The wood components that divide the space were conceived as freestanding furniture assembled inside a box

Omaha architect Randy Brown uses his HOME AND STUDIO to teach clients principles of construction and recycling.



The conceptual diagram of the residence and studio shows a rational building plan consisting of grid lines and a circle. These were the end result of much trial and error.

by Charles Linn, AIA

The studio of Omaha architect Randy Brown, AIA, combines adaptive reuse, business promotion, and experimentation. In addition to all that, it is the office for three staff architects and a home for he and his wife, Kim. The building began its life as a preschool, built in the late 1970s. It was designed as a 40-by-40-ft passive-solar structure, complete with tall, south-facing windows, sunshades, and pipes in the concrete floor to exhaust warm air into the space. Located on Dodge Street, one of Omaha's main thoroughfares, the building still has a noticeable presence, although one would know it was a studio today only because of the sandwich-board sign that is set out next to the driveway at the start of business hours each morning.

When the Browns bought the building for $70,000 three years ago, it was in considerable need of repair. Plywood had been tacked over missing glass, and paint was peeling everywhere. Violating the standard advice all architects give clients who are contemplating major remodeling of their property—that is, don't live in it while the work is being done—Randy and Kim sold most of their possessions and moved in. Only the shower was completed. The second bit of advice architects give their clients—don't try to do the work yourself—also went out one of the missing windows. These difficult conditions were compounded by the fact that Randy was already using the building as his office during the year and a half construction was under way.

Randy claims his philosophy for grouping work and living functions together is fairly simple: "I love my work, so there really isn't any need for separation between where I work and where I live. If I get tired of working, I just go shoot some hoops," he says, opening the back door to reveal a basketball court, complete with a three-point line.

But a more thorough examination of the space shows there is a method to what would appear, to some, to be madness. The major components of the space are built of stock lumber, cable, and pieces of hardware available at almost any hardware store, as well as salvaged light fixtures and odd pieces that were picked up during trips to local junkyards. Some elements were reused from the existing building, such as the exterior doors, which are now clad with galvanized corrugated steel. Part

"THERE IS NO NEED FOR A SEPARATION BETWEEN WHERE I WORK AND LIVE."

of the idea behind salvaging a building and its components is to show clients the value of recycling. Another of Brown's ideas was to expose the hidden structure of the studio so that clients can see *(text continues)*



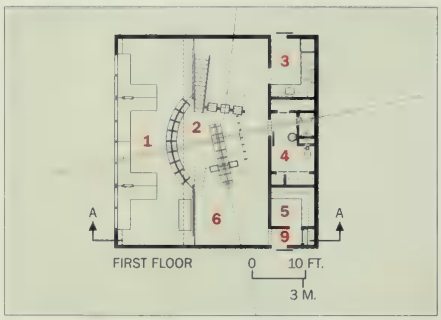


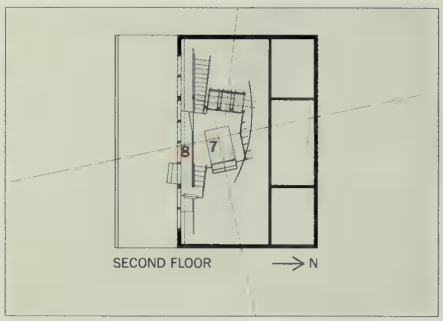
Project: *Home and Studio*
Omaha, Nebraska
Owners: *Randy Brown and Kim Brown*
Architect: *Randy Brown, AIA*
Collaborators: *Christian Petrick, Jason Winterboer, Cynthia Ray, Tom Alisma*
General Contractor: *Randy Brown*



1. *Studio*
2. *Conference/dining*
3. *Kitchen*
4. *Bathroom*
5. *Utility*
6. *Reception*
7. *Sleeping loft*
8. *Catwalk to roof*
9. *Entry*
10. *Sunshades*

SECTION AA



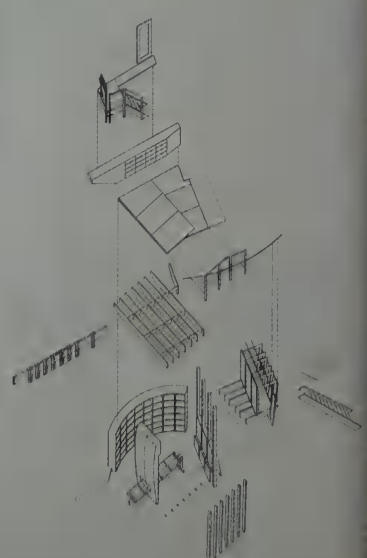


Fitting out a 1970s shell
An exploded axonometric shows how the various parts of the "furniture" fit together. While the complex axial relationships generated by the placement of these parts may appear to be the product of some kind of calculus, this is an after-the-fact drawing. Brown says that most of the placement decisions were made by either working with models or simply building things full-size and moving them around. Working at full size also allowed Brown to experiment with different shapes to find those that were the most pleasing to him.

Only one part of the geometry was really a given: the south third of the building steps up 8 in., and a shallow arc was cut out of the step. The curved section of bookcases is nestled into this arc. Other elements, such as the arched vertical form that supports the rolling conference table, have multiple functions integrated into them, so no space is wasted. The metallic-laminate-clad pier holds up one end of the loft; on the inward-facing side of the curve are uplit display niches.

All of the "furniture" in the studio is assembled with exposed screws and with brackets picked up during "about 500 trips to the hardware store," Brown says. He considers it a work in progress: "It will never be done."

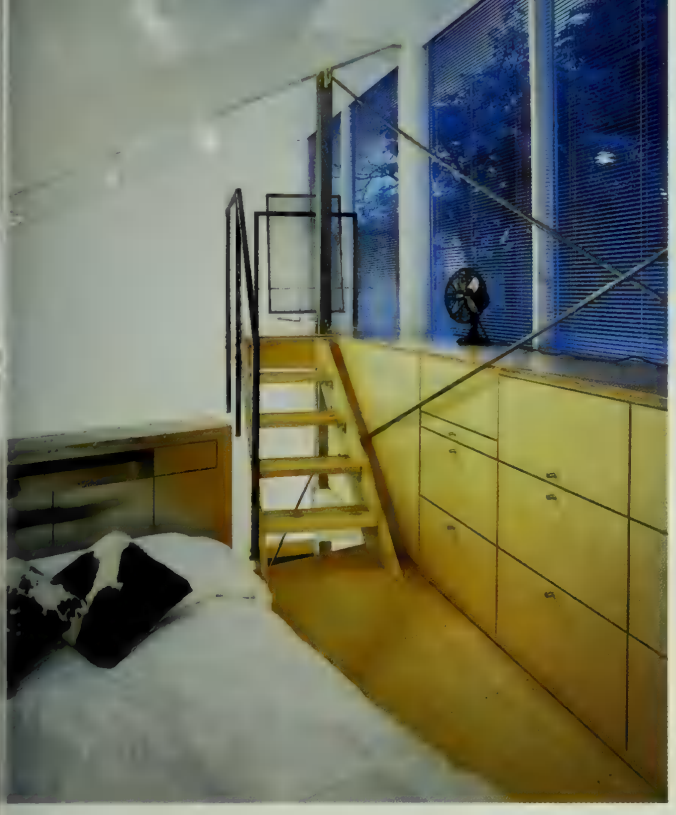








The loft (this page and opposite) and conference room beyond show Brown's limited material palette: unfinished Southern pine, glass and unfinished metal, and white-painted gypsum-board walls.





The loft's stairway leads to the building clerestory. Brown hopes to add bedrooms over the roof outside these windows and make the loft into an office. Drawers are built to work as lateral files. Piping in the bathrooms, the structure, and hardware are left exposed to show clients how buildings are put together.



what goes into making up a building's skeleton and environmental systems: the framing, ductwork, and piping are left exposed.

Brown also considered how he and his colleagues would work together in the space. "I wanted an environment that would foster collaboration, that would express the architects' office as a creative entity in itself, and that would expose my clients to what an architect's office really looks like," he says. Samples, catalogs, and drawings are organized neatly in view. Unlike many architects' offices where clients are never allowed to see the back room, Brown's office doesn't really have a "back room."

The exterior received a new coat of EIFS and new glazing, while the interior of the building was stripped down to bare walls. Utilities—kitchen, bath, mechanical, and storage—were grouped into a zone that is parallel to the north wall of the building, leaving a large area to the south that is divided into two zones, one that Brown describes as a "free zone" and another that is soley for work.



Inside the free zone is a large piece of furniture Brown calls a "container." It is a two-story free-standing structure composed of bookcases, cabinets, and a series of angled timber braces that enclose a conference and dining room and support a loft that serves as the Browns' bedroom. The entire structure can be disassembled with a screwdriver and a few wrenches, and moved or altered to suit future changes in the building program. In order to be exempt from certain building-code restrictions, Brown even persuaded the building department to regard the "container" and loft as a piece of furniture, rather than part of the building .

A conference-room table with a heavy glass top is supported at one end by legs with casters and at the other end by rollers mounted inside a horizontal slot cut into a curved wall. The wall, covered with metallic-clad laminate, also supports one end of the loft. Brown notes that he used to specify solid stainless steel for such cladding, but found it to be costly to fabricate, finish, and install, and now uses the metal-clad laminate instead.

"WE LEARNED THAT THE HARDEST CLIENTS TO PLEASE ARE OURSELVES."

"One thing that Kim and I learned was that the hardest clients to please are ourselves. I didn't really do any drawings. We built models and then full-sized pieces, and kept moving them around until they made something that was pleasing to us. But it wasn't always easy to make ourselves happy." ■

Manufacturers' Sources
Exterior finish: *Dryvit Systems*
Glazing: *Insulite Glass, Rohm & Haas*
Hardware: *Forms & Surfaces, Julius Blum & Co., The Ironmonger*
Paint: *Sherwin-Williams*
Laminate: *WilsonArt*
Seating: *Herman Miller, Knoll, Cassina*
Filing cabinets: *Steelcase*
Lighting: *Halo, Lightolier*
Plumbing fixtures: *Elkay, Grohe, American Standard, Kroin*

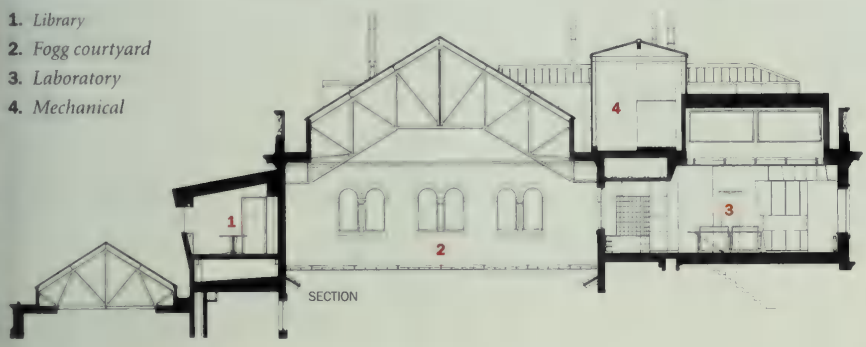


Cabinets in the painting laboratory (above) are made of marine-grade mahogany plywood, which contains no formaldehyde that might harm the paintings. Pedestrians on campus can barely glimpse the new west wing, clad in lead-coated copper, above the Fogg Art Museum (opposite).

Art and science find an uncommon meeting ground at the **STRAUS CENTER** for Conservation and Technical Studies at Harvard.

by Nancy Levinson

1. *Library*
2. *Fogg courtyard*
3. *Laboratory*
4. *Mechanical*



Among the several thousand paintings in the collection of Harvard University's Fogg Art Museum is *The Holy Family with an Angel.* Attributed for many years to an unknown 16th-century Dutch artist, the triptych was studied several years ago by conservation scientists at the Fogg. Using a technique called electron probe microanalysis, the researchers identified gypsum in the painting's base layer. A matter-of-fact physical finding, in some sense; as it happens, however, this identification provided art historians with evidence that supports new understanding. Because gypsum was used not in northern but in southern European paintings, and because the painting resembles a Spanish panel in the Prado, art historians are now convinced that this Holy Family was painted not in Holland but in southern Europe, most likely in Spain.

Electron probe microanalysis is just one of several sophisticated conservation technologies developed in the last three decades that enable conservators and historians to understand, in unprecedentedly microscopic detail, works of art and other artifacts. Techniques such as dendrochronology, infrared reflectography, polarizing microscopy, and Fourier transform infrared spectroscopy, to name just a few, yield information about the age of the wood used in panel paintings, drawings that lie beneath the compositions we see in visible light, pigments and binders, the materials of sculptures, the history of repair—in short, about much that we cannot see with our unaided eyes and that was once tantalizingly unknowable. Once used mainly to verify attribution, judge authenticity, and maintain the integrity of the object, the art and science of conservation has become extraordinarily and excitingly complex.

One imposing measure of its current status is the recent renovation and expansion of Harvard University's conservation facilities. Established in 1928, Harvard's conservation department is one of the oldest in the United States. By the 1980s, the senescence of its physical facility, located on the top floor of the Fogg, was beyond doubt. Conservators and students had long toiled in overcrowded spaces which, despite various retrofits, ill accommodated the new equipment; even worse, given the noxious solvents that are part of the conservator's arsenal, the rooms were badly ventilated. Designed by the New York City firm of Samuel Anderson Architect, the new Straus Center for Conservation and Technical Studies solves these basic dilemmas of space and air. The new design has replaced the hodgepodge of smallish rooms, inefficient circulation, and antiquated service chases with



Project: *Straus Center for Conservation and Technical Studies, Harvard University Art Museums, Cambridge, Mass.*
Architect: *Samuel Anderson Architect—Samuel Anderson, principal-in-charge; Edward Gormley and Alexey Grigorieff, project architects*
Engineers: *Severud Associates (structural); Exergen Corp. (mechanical); Thompson Engineering Co. (electrical); R.W. Sullivan, Inc. (plumbing/fire protection)*
General Contractor: *Shawmut Design and Construction*





In the paper and sculpture/objects labs (above), ductwork is hidden in a gray fiberglass soffit, but the exhaust trunks coil through the space. Several of the rooms with doors (opposite) were conceived as furniture-like objects within the larger space.

1. *Painting lab*
2. *Paper lab*
3. *Sculpture/objects lab*
4. *Analytical lab*
5. *Library/admin.*
6. *Seminar room*







An interior skylight (left) connects the analytical and sculpture/objects labs, creating a sense of openness. Casework designed by the architect defines circulation through the open laboratory space (right).

a series of expansive, well-lit, loftlike laboratories and teaching and work spaces. To maximize the square footage for the four laboratories—painting, paper, sculpture and objects, and analytical—interior walls have been used sparingly, mostly in the analytical and painting labs, where researchers requested some privacy; a good deal of circulation is defined by furniture, including cabinets, worktables, and closets designed by the architect. Several of the rooms with doors—whose programs vary wildly, from private office to spray booth—have been conceived as furniture-like objects within the larger flow of space. The construction of a new wing along the west elevation of the Fogg yielded about 1,700 sq ft of new space, housing a seminar room, library, offices, and a staff kitchen/dining area.

THE CENTER NEEDED TO REFLECT "THE EMPHATIC PRESENCE OF DESIGN"

To meet the demanding ventilation needs of conservation work, the center incorporates a new mechanical system, including four air handlers and nineteen various supply, return, and exhaust fans. And, to reconcile one of the inherent contradictions of art space design—which is that the high and stable humidity levels, e.g., about 50 percent, that protect art objects from too rapid expansion and contraction can often hurt the building by causing moisture to condense in outside walls—a continuous vapor barrier has been installed in the roof and exterior walls.

Like architecture, conservation blends art with science. What makes the Straus Center so distinctive is the skill with which these two worlds, so often thought to be opposed, are here married. James Cuno, director of the Harvard University Art Museums, felt strongly that the center needed to reflect "the emphatic presence of design, the signature of an architect." The architect has chosen to work with considerable stylistic freedom, a decision influenced by what Anderson calls the "schizoid" nature of the Fogg. "You walk through the door of what looks like a Georgian building," he says, "to find yourself in the courtyard of a Renaissance palazzo. Clearly this was a building that did not demand strict adherence to a particular style." This freedom has here produced an uncluttered, neomodern interior with a contemporary palette.

The conservators are unequivocal in their appreciation of the new center. Henry Lie, Director of the Straus, recalls that Anderson spent six months talking to the center's staff. Says Lie, "The conversations were extremely thorough and everyone contributed, which is reflected in the great attention to detail that you see throughout the space." ■

Manufacturers' Sources

Lead-coated copper standing seam cladding and roofing: *Gilbert & Becker*
Reinforced-PVC elastomeric roofing: *Sarnafil, Inc.*
Painted wood windows: *Duratherm*
Exterior glazing : *UltraGlas, Inc., Southwall Technologies (Heat Mirror 88)*
Interior glazing : *Bendheim Glass*
Locksets: *Schlage*
Hinges: *Stanley*
Pulls: *The Ironmonger*
Hollow metal and custom cherry doors: *Edward R. Eastman & Co.*
Sliding door tracks: *Lawrence Track*
Cabinetwork: *Mark Richey Woodworking, Inc.*
Acoustical ceilings: *Decoustics, Inc.*
Paints/stains: *Benjamin Moore & Co.*



To be able to afford their own top-floor [illegible] (concept drawing right), Charles Wolf (in jeans, left) did much of the construction work.

Wolf designed and built this "craft hut" (right) for the ground-floor toy store. The owner says children are usually unable to resist exploring its inner compartment.





By tucking a kitchen, sleeping loft, and bathroom behind a pivoting partition (sketch and photo above), the architects left ample work room for the loft's owner, an artist.

PROJECT DIARY: Dean/Wolf designed their URBAN INTERFACE LOFT, then found getting it built meant do-it-yourself.



This drawing sums up what the architects hoped their house could be: a dwelling where the city meets the sky.

by James S. Russell, AIA

After living in a succession of apartments where sunlight was only an occasional presence, architects Kathryn Dean, AIA, and Charles Wolf sought in their new home "a relationship to the sky." It doesn't seem much to ask. In costly and overbuilt Manhattan, however, achieving their dream meant coping with much more than they had bargained for. The commonplace dream of building a home of one's own takes on additional urgency for architects. It becomes a vehicle for driving a design methodology to the next level or exploring an idea about living. And so it was for Dean and Wolf. Because they had found clients unable to grasp some of what they regarded as their best ideas, they decided to work them through in a space of their own. "We always find ourselves talking clients into things," explains Dean. "They don't always understand where the money is going." The dream held by Dean and Wolf (who are partners in their own firm and married to each other) was to realize a poetic vision of New York City that they had always harbored.

1992-1993 The sky in New York City is not like other places. Whatever it is doing plays across the shafts of skyscrapers and the rooftop jumble of water tanks, fan-coil units, and gargoyle-festooned parapets. "We wanted to reflect and refract the city and the sky into our space," Dean says. Though the real estate market barely pulses in 1992, no one will sell them the top-floor space they seek, holding it for better times, explains Wolf. The couple consider adapting an entire building. Finally, a dilapidated, six-story electrical warehouse in TriBeCa beckons. (Since the mid-1980s the neighborhood has turned from a moribund industrial-loft district to a creatively vibrant residential one.) Though it faces Duane Park, an attractive triangle of greenery, the building appears to have little to recommend it. For lofts, where natural light (and legal windows, required for each habitable room) come largely from the narrow ends, the floors are small, only about 1,350 usable sq ft. Light from the back is not much use because it faces a tiny, dim court. The building needs every mechanical, electrical, and life-safety system upgraded. Even in such a sluggish market, it needs several partners to work financially. Dean and Wolf find themselves in the real estate business, rounding up a group of friends to purchase units, and packaging the building as a commercial/residential cooperative.

1994 Such an undertaking offers plenty of financial risks and legal pitfalls, not the least of which is the unwillingness of banks to finance a venture by partners with no real estate experience. Actually, observes Wolf, banks "won't finance anything." The building partners leave no stone unturned in the search for sufficient cash. To make the $850,000 deal work, the seller agrees to carry a mortgage (a bonus made possible by the slow market), and the partners agree to rent out the ground floor as retail space to generate income, rather than sell it off to an additional partner.

The five upper-floor partners (Dean/Wolf Architects, a photographer, another architect, an artist, and an engineering firm) create five equal shares—or sort-of-equal shares: as compensation for taking the presumably most valuable top floor, Dean/Wolf agree to serve as otherwise uncompensated architect of record for the building-wide renovations required to make the structure legally habitable. Getting the building shaped up proves to be a far more open-ended endeavor than the architects anticipate.

JUNE 1995 Renovations begin. Before the building can be legally converted to mixed commercial and residential use, it must be brought up to modern code standards. The main stair is extended to the roof as an additional emergency exit, and a new sprinkler system and boiler, as well as hot water, ventilation, and electrical service, are installed. A crumbling parapet and dilapidated roof are also replaced. The general contractor stages the work within

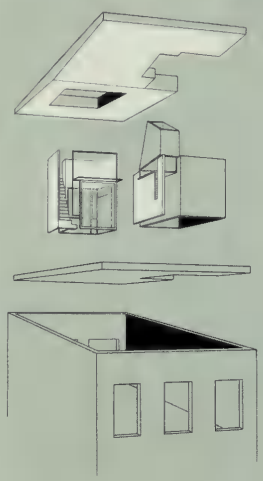
Project: *Urban Interface Loft New York City*
Client: *Kathryn Dean and Charles Wolf*
Architect: *Dean/Wolf Architects—Kathryn Dean, AIA, Charles Wolf, partners-in-charge; Karel McAllister, Kelley Bryant, Aaron Fein, project team*
Engineer: *Anchor Consulting—Evan Akselrad*
General Contractor: *LL Construction (core and shell)*



The architect as general contractor Even as professional-practice gurus urge architects to move into construction processes to increase profits, other architects do it to assure affordable quality.

Charles Wolf did not intend to become a general contractor, or even a metalworker, but he took on much of the construction himself since otherwise he and Dean could not afford to realize their dream.

Wolf supervised the building's contractor, who upgraded systems and did minor repairs to the street facade (light-colored building in center of photo left). In adding a new rooftop exit-stair bulkhead (right-hand object in middle of drawing below), the builder put new steel supports to widen the rear window openings (early demolition photo below right) and reframed the steel roof supports for Dean's and Wolf's skylight and courtyard.



An abandoned shaftway was pressed into service for the passenger elevator. The contractor failed to recognize that the shaft was nearly 10 in. out of plumb and work was delayed while corrections were made. Installation of the new elevator's cab was held while the elevator platform served to convey building materials up to Dean/Wolf's floor. Truck-mounted booms lifted the largest items to the roof.

Wolf built out the partitions and installed stairs, pavers, floors, and sheet copper. But as the roof replacement awaited completion of parapet repairs and bulkhead work, the courtyard was temporarily flashed. ("It didn't work," says Dean. "It rained in here for months.") Once the reroof was completed, Wolf was able to finalize interior flooring and cabinetry.



the floor Dean and Wolf intend ultimately to occupy. The space is perpetually strewn with debris, and its design potential begins, in the architects' minds, to leak away. Though contingencies are expected, including an elevator pit that needs reinforcing, they are still at times mentally debilitating.

Worse is New York City's drawn-out process for legal conversion of the building to residential use. The partners need not only a building permit, but a time-consuming permit from the city's Landmarks Commission for the minor facade changes contemplated. Wolf also volunteers to obtain the complex documentation required to avoid paying fully a punitive tax on converting buildings still deemed viable for industrial use. By demonstrating to officials that such uses have long departed, Wolf is able to get the the tax halved.

THE SPACE IS PERPETUALLY STREWN WITH DEBRIS, AND ITS DESIGN POTENTAIL BEGINS, IN THE ARCHITECTS' MINDS, TO LEAK AWAY.

Dean/Wolf design the dwellings for two of the building's partners. For Suzanne Hanson, an artist who wants to make the most of her work space, the pair pack the core of the fifth floor with a small kitchen, bathroom, and sleeping loft, all for about $70,000. Because Hanson works out of town much of the time, she is able to close off areas from guests who occasionally use a back bedroom. "I wanted it to be sort of like art camp," explains Hanson, "a place where I could come up and work hard and not have a lot of housekeeping to do." To make the most of Hanson's limited space, Dean designs a worktable that doubles as a place to store the dining table when she is working. The worktable includes a rolling shelf that keeps paints in arm's reach but off the working surface.

"I was probably a nightmare of a client," comments the second-floor photographer who became one of Dean/Wolf's clients, "given all the specific requirements that I had, and given that I know something about aesthetics." (He asked not to be identified.)

The architect and client find common ground in a mutual attraction to material detail and simple rectangular forms. Dean founds the scheme on proportions akin to those of the 8-by-10 negative the photographer commonly works with and is comfortable with. "I don't like too elongated a rectangle; I like a sort of blocky rectangle," he says. But it was an education. "I knew nothing," the photographer recounts. "I didn't know what a pull was. I don't think I'd ever bought a toaster. I didn't know what slate was. I hadn't done anything but I wanted to get everything right."

Dean/Wolf line his loft with hand-rubbed stucco walls, tucking bedrooms and bath to the back and extending the stair and elevator core with a Z-shaped cabinetry piece. The idea, says Dean, was to make a room that could have a public character for those times when the photographer exhibits work or invites groups of people over. Knowing that Dean might aspire to something more "exciting," the photographer thinks he got "dull," but that's what he wanted. "I didn't want a space in which the architecture was prominent because I felt the view [of the small park] outside the windows was extraordinary and I wanted to make that the most extraordinary element."







A courtyard cut out of the roof (above) is the chief design focus of Dean/Wolf's loft. Sheet copper faces a living room partition (far left) and laps wood cabinets in the kitchen (left).

The architects also help the ground-floor tenants, Ellen Rosenfeld and Shaun Asael, realize their dream of opening a toy store, Just Jake. Working with a tight budget, the owners clean up the shell of the space and Wolf designs two key elements, a "craft hut," where craft classes are held, and a "book boat" for readings. "It was very difficult for me to understand the plans, but Chuck had such enthusiasm that I went along," recounts Rosenfeld. Unfortunately, bids come in too high. With success of the store key to the financial viability of the building, Wolf, who has construction experience, ends up building the structures. "He understood exactly what I wanted," says Rosenfeld.

1996 As the rest of the building comes together, Dean and Wolf are able to concentrate on their own space. While the loft is small, its design is intricate, and the architects find it well beyond their means—unless they build it themselves. Wolf has already gotten used to finding subcontractors and fabricators for the specialty items key to the team's designs [in, for example, the Spiral House, RECORD, April 1995, pages 62–67]. Dean/Wolf, like many design firms with demanding detailing standards, find that general contractors and construction managers see themselves as fundamentally coordinating the assembly of prebuilt products, and those trades that require custom or on-site fabrication are increasingly not on a general contractor's list of subcontractors. Dean/Wolf need to become involved in finding specialists, says Wolf, because often the less-experienced subcontractors either offer astronomical bids or are unable to deliver the desired quality.

Wolf supervises mechanical, electrical, and plumbing subcontractors but builds most of the general-construction work himself, including the cabinetry, the metal cladding, the precast-concrete steps that lead up to the roof, even the overscaled pivot door that leads to the courtyard. The office is set up in the front of the building but finishing of this area must await that of the main body of the apartment. The work is staged in the future living area. The bedrooms are finished first, then construction moves toward the center of the loft.

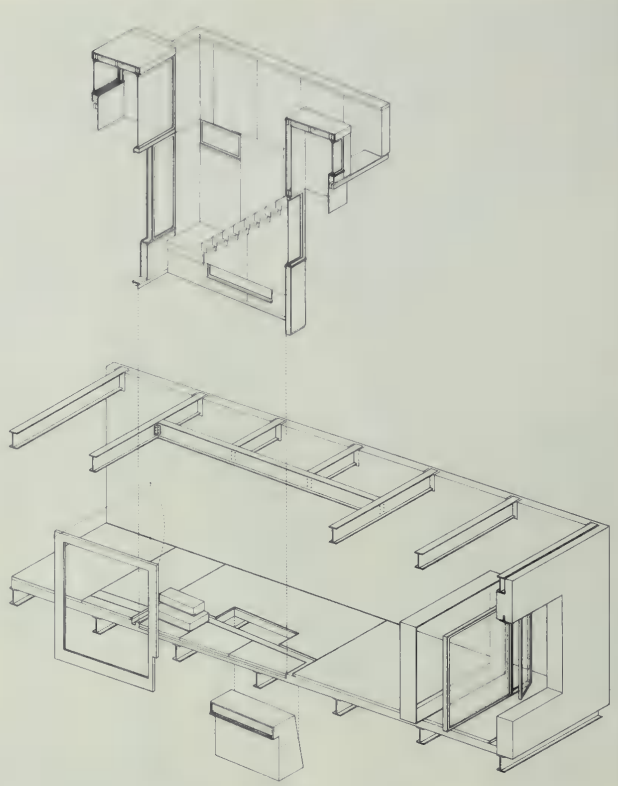
Since the plan is not completely orthogonal, the architects angle the position of the partition that divides the living room and the corridor to create a forced-perspective effect. The key design element, however, is a courtyard carved out of the roof by restructuring its steel-beam structure (drawing right). Their thinking about the way light and views could be drawn into the space comes from the usual sketches and study models. But it is also influenced by explorations in studios at Columbia University, where the partners teach, and examination of work by artists who make light an important element, such as Robert Smithson, Keith Sonnier, Robert Irwin, and Dan Graham.

Around the court, Dean and Wolf carve clerestories and light scoops. One, boxed in wood, draws light from the courtyard to the bathroom. Another low-level clerestory conveys daylight to Hanson's loft

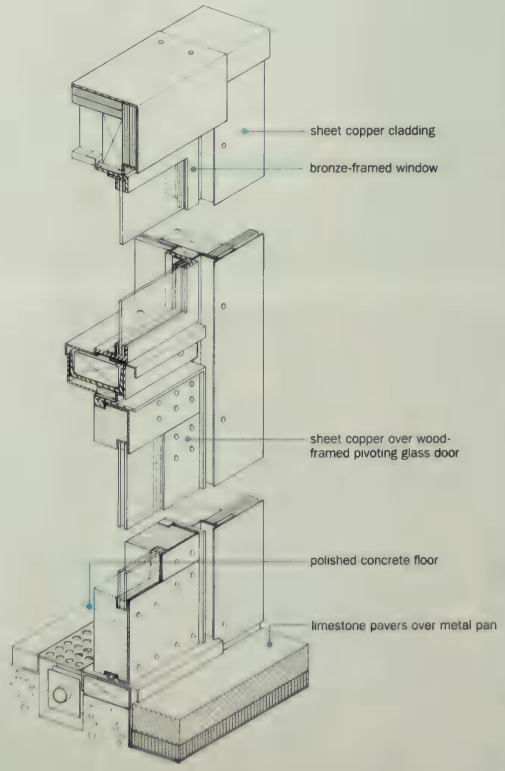
GHOSTLY IMAGES OF THE ROOFSCAPE APPEAR, THEN DISAPPEAR.

below. On the east and west sides, the scoops are partly glazed, creating a myriad of reflections, which, added to the changing patterns visible in the courtyard itself, are picked up deep in the loft by a sliding sandblasted-glass partition that divides the office from the living areas.

Layered over the handling of light is a design dialogue among materials. The parts of the courtyard that are not glass are clad in copper sheet. The copper extends into the apartment, demarcating "public" elements and meeting other materials via carefully calibrated laps and



EXPLODED VIEW LOOKING NORTH



SECTION AT PIVOTING DOOR



At twilight, the city recedes and ephemeral reflections of the loft's interior appear to float in the courtyard.

reveals. Maple-veneer cabinetry, into which Wolf fits closets, drawers, and other storage, indicates the private realm of bedrooms and corridors. Skim-coated with plaster, the ceiling is similar in color and texture to the polished concrete floor. Reveals heighten the planar effect, visually floating the ceiling and floor away from the sandblasted original brick walls.

MARCH 1997 The do-it-yourself method assures quality, but does not make this a speedy job. Wolf and Dean move into their loft about three months before it is complete. ("I'd never do that again," swears Dean.) Though this construction job has been a part of their lives for some 20 months, Wolf confesses that "I didn't really know what it looked like until the final debris was cleared away." The transition is so unexpected that he wakes up the next day and doesn't recognize where he is.

What Wolf also experiences is the ineffable qualities the architects have sought in the space at last coming to life. The courtyard is not just a copper-clad lens to the sky. As light changes throughout the day, ghostly images of the roofscape and reflected rectangles of light appear, move across the planes of glass, then disappear. As day turns to evening, reflections of the interior begin to superimpose themselves over the reflected deepening sky. As Wolf and Dean alternately open and close the sliding and pivoting planes of glass, the experience of light varies further. And they make discoveries about the design: combined with the ethereal reflections, the forced perspective blurs the apparent sense of enclosure of the space, allowing it to seem larger at times than it is.

Completion of the major work within the loft means less explaining to potential clients. "We may work with materials that are inexpensive," explains Dean. "But, unless they can really see the difference, clients often don't understand why a window should be custom-made,

NOW CLIENTS SEE THE ARCHITECTS' METHOD AND THEY UNDERSTAND IT.

why it's worth spending more money on windows built to essentially no tolerance." Now, when clients visit, "They see it and they understand it."

The effort to realize a home of their own was much greater than they once anticipated, exacted more in tardiness and stress than in cost. Manhattan's real estate market has roared back to life, assuring the viability of the partners' total investment of approximately $1.7 million. But there's yet more to do. A lobby renovation is in construction and a common roof deck has yet to materialize. Additional facade stabilization and window replacement lies in the future.

One of the original goals of the project, however, may fall victim to success. Dean, in particular, sought a place for both living and working: "We work long hours, our daughter can see what we do, and I have a tendency to get up in the middle of the night to work out an idea." Unexpectedly, the loft has helped the partners boost their workload to the point where they may have to move the office out. ■

Manufacturers' Sources

Wood windows and door frames: *Building Block*
Bronze window frames: *E Fabrication—Scott Enge, Joel Sabel*
Sandblasted and clear tempered insulating-glass units: *Harris Glass*
Skylights: *custom*
Plaster: *Julian Maloney*
Limestone courtyard pavers and counter surfaces: *Pasvalco*
Sandblasted-glass walls at bath: *Kam Cheng Glass*
Bath fixtures: *Porcher*
Faucets: *Dornbracht*
Appliances: *Miele (oven), Sub-Zero (refrigerator), Master Restaurant (custom cooktop)*





Juxtaposed materials compound light reflections as in a bath-to-bedroom corridor (above) or below a skylight next to the living room (left). Since the building sides weren't square, the architects arranged partitions to emphasize the length through forced perspective (plan).

1. *Entry*
2. *Bedroom*
3. *Courtyard*
4. *Living*
5. *Office*
6. *Light scoop*
7. *Sleeping loft*



NORTH-SOUTH SECTION



SIXTH FLOOR



A sandblasted-glass light scoop above the living area transmits reflections of the rooftop cityscape into the living areas. A narrow scoop below the stairs draws light to the fifth-floor loft.



A ductwork fabricator made the entrance's stainless-steel "rotunda" (this page and opposite top). A rank of secretarial stations lies beyond.

Are engineers too rational and methodical? Offices of **WMA CONSULTING ENGINEERS** show that they can loosen up.



by James S. Russell, AIA

Most architects know that good engineers are hard to find. When consultants and architects successfully collaborate, there's a mutual dependency and trust akin to that between spouses, relatives, or close friends. And most architects also know that professional colleagues, as much as friends or relatives, can be among the riskiest of clients. Should a project for some reason go sour, the relationship, not just the job, falls victim.

In designing offices for a valued consultant, Joe Valerio, FAIA, knew that the project would be neither glamorous nor hugely profitable, and that risking the relationship might be part of the job. But he owed Gabe Reisner, head of WMA Consulting Engineers. It was Reisner who had decided that Valerio, once a sole practitioner, should merge his firm with Mark DeWalt's. He successfully arranged a meeting, which then

PUTTING A PROFESSIONAL RELATIONSHIP AT RISK WAS PART OF THE JOB.

became a successful marriage (the merged firm now has a staff of 40, bigger than the original firms put together). Reisner chose Valerio Dewalt Train Associates to design his firm's new offices.

WMA did not need a wide variety of highly specific spaces, it didn't need complex technologies (though it designs sophisticated mechanical, electrical, plumbing, and fire-protection services for others), and it didn't need a high-concept image. So why did it need Joe Valerio, who has a playful sculptural sensibility evident in such projects as the Gardner Residence [RECORD, September 1995, pages 104–9] and a string of projects for U.S. Robotics [including UWest, RECORD, September 1996, pages 98–101]? Since so many engineers see architectural design as an inconvenient frill, it is intriguing that Reisner chose Valerio principally because "I think he may be Chicago's most gifted designer." The engineers also had a modest budget, and Reisner hastens to add, "Joe is good at the process of negotiating when a project is over budget—what should stay in and what can be taken out."

One reason Reisner wanted to keep it simple is that the firm strives to minimize hierarchy, and he didn't want the window offices and other trappings of more status-driven organizations to impede interaction among project managers and designers or among disciplines. The firm chose a ground-floor space in a turn-of-the-century loft building framed in steel and wood. It was once at the bottom of the building's light court, but because the court was glazed at roof level as an atrium some years ago, not much light penetrates to grade. The predominant natural light is from the narrow street-facing end.

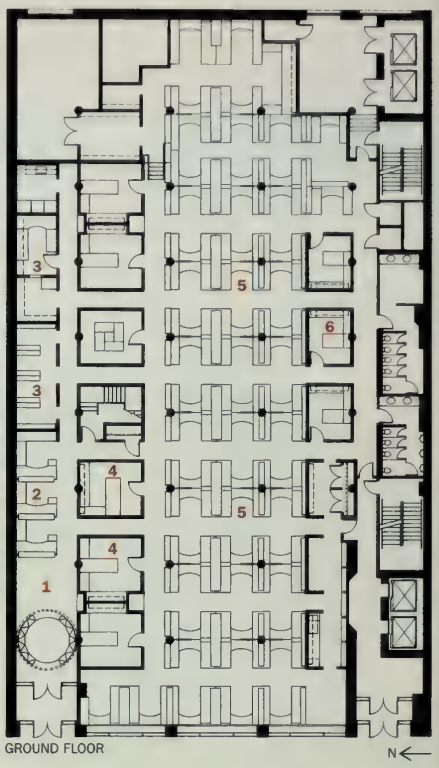
Valerio describes his clients thus: "Engineers are methodical and well organized, the keepers of rational thought in an increasingly ambiguous world." Respecting this culture, he zoned the space in plan with Euclidian clarity. Within the 20-by-20-ft bay system of the building, Valerio Dewalt Train devised a modular system based on a U-shaped, 8-by-10-ft workstation that the firm designed. Amidst the gridded framework exposed by stripping the building down to its steel and heavy-timber structure, the open-workstation area rises two stories to a skylight inserted in the building atrium.



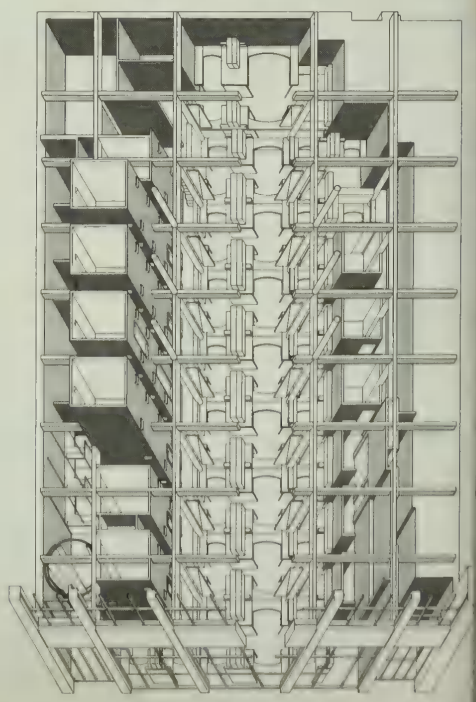
Facing these workstations, Valerio has placed a layer of partners' private offices separated by aisles of equal width. On the other side of the

Project: *Offices of WMA Consulting Engineers*
Chicago, Illinois
Architect: *Valerio Dewalt Train Associates—Joseph M. Valerio, FAIA, principal-in-charge/design principal; Neil Sheehan, AIA, project architect; Kasia Gawlik, Jason Hall, Erica Pagel, Marius Ronnett, Andrew To, design team*
Engineer: *WMA Consulting Engineers*
Consultant: *Nancy Willert (interiors)*
General Contractor: *The Kaiser Loftrium*





1. *Reception*
2. *Administrative assistant's workstation*
3. *Support*
4. *Partner's office*
5. *Engineer's workstation*
6. *Project manager's office*



Out of the carefully refined plan of open workstations (above) and private offices (within buff-painted "towers," opposite), Valerio Dewalt Train layered overlapping patterns of lighting fixtures and ventilation ducts within the building's exposed structure (axonometric right). Meeting rooms and space for expansion are included in the mezzanine over the enclosed offices.



workstations, project managers occupy a second layer of smaller private offices. Secretaries and support staff are lined up long the north side, in a 15-ft-wide zone aligned within a narrower structural bay facing the reception lobby (opposite). "This is a plan any engineer could love," says Valerio.

Part of the reason such a dense plan works is the efficiency of the desks. Below the medium-density fiberboard tops (lacquered with a hard polyurethane finish), they contain file drawers and drawing storage. A low bookcase floats on a plywood divider and metal pipe.

The architect set lines of direct/indirect fixtures at crisscrossing diagonals (opposite and above), centered within the structural bays. It's

"THE DESIGN GOES NUTTY IN THE THIRD DIMENSION."

part of how "the design goes nutty in the third dimension," explains Valerio. Valerio carried the footprint of the partners' offices upward two stories, making forms akin to "a line of buildings." He turned the diagonal theme of the lighting on its side, dotting the walls with light brackets simply adapted from standard fixtures. The lighting sparkles off stainless-steel-sheet suspended partitions that offer a modicum of visual privacy. Along with the rotundalike lobby transition piece (page 114), they were fabricated by a favored vendor, Hill Mechanical.

There is, however, no technological exhibitionism here. Even the ceiling fluorescents are good commercial grade, neither high-end nor custom. Layered over the lighting are ceiling-hung round ventilation ducts that feed from, alternately, the north and south sides of the atrium. The rows of desks conceal data, power, and telephone lines drawn from within the walls.

"The idea was to make it mechanical and urban and monumental," explains Valerio. Reisner is pleased, but he looks at the project in a characteristically pragmatic way. "People are able to concentrate better and are at their desks more," he says. "It's a message to people and it's about how we manage. We looked at the space as a tool we needed rather than a place that's about status." ■

Manufacturers' Sources
Doors: *Ceco (metal), Lazzaro Companies (wood)*
Hardware: *Sargent (locksets), Intercon (security devices), Grass (cabinet)*
Custom furnishings and millwork: *Mellow Millwork, Baltic Birch Plywood*
Paints and stains: *Dayco Tru-Tone (analine dye), Benjamin Moore (paint)*
Finishes: *Milwaukee Marble (granite), Formica (plastic laminate)*
Lighting: *Illumination Concepts & Engineering (ambient), Winona Lighting, Halo (custom wall brackets)*



A sampler of McMakin furniture (below). Excerpts from the designer's sketchbooks reveal a continuous refinement of basic forms (opposite).

Hailed as an artist, even a de facto architect, **ROY McMAKIN** makes furniture, the building block of a space, transcend the everyday.



Roy McMakin, shown here in his Seattle studio (left). A chest of drawers designed by McMakin is made of Italian cypress (below right).

by Karen Stein

Roy McMakin's furniture seeps into your consciousness and stays there. It's just hard to recall when you saw it first. In fact, John Walsh, director of the J. Paul Getty Museum, is now one of McMakin's most ambitious clients, although he can't remember exactly when he became aware of the designer's work. Was it on a visit to McMakin's former store, Domestic Furniture, which enjoyed a seven-year run on Los Angeles' Beverly Boulevard before McMakin closed shop and moved to Seattle? Was it in the home of colleague Barbara Whitney? Or did another colleague, Deborah Gribbon, tell him that McMakin had designed the couch for her husband's psychoanalytic practice? Since McMakin began designing furniture for production 10 years ago, his aesthetic seems to have permeated the interior landscape. The feeling is only enhanced by the furniture's vague resemblance to something already known—by Irving Gill or Jean-Michel Frank, perhaps. What's clear to Walsh, however, is that McMakin's designs were in the air as he, Whitney, and Gribbon were making decisions about their office space at the new Getty Center in Brentwood and looking for pieces that would complement the architecture by Richard Meier & Partners. "We all arrived at Roy by different means," explains Walsh of how McMakin was chosen to create pieces for their offices, meeting rooms, study areas, and casual gathering spots. As work progressed, the commission grew to include the selection of paint colors for walls and fabrics for staff task chairs and tackboards. Many clients meet McMakin through his furniture and then ask him to do more, in some cases even design their homes. It's an inversion of the typical architectural process, but is now a recurring theme for the 41-year-old McMakin. "His table is so right for the space that you feel totally comfortable turning the space over to him," observes long-time client Hugh Davies, director of the Museum of Contemporary Art, San Diego. McMakin's training is in art and he began designing furniture as part of an art installation while he was a student at the University of California, San Diego. Although he temporarily abandoned painting to devote himself entirely to tables, chairs, sofas, and storage units, he now spans almost the entire spectrum between art and architecture.

Architectural Record: When did you start designing furniture?
Roy McMakin: I was interested in furniture as a kid. It was the thing I focused on, but I didn't start making it or designing it until I was doing artwork. I needed a table as part of a performance art piece and I went and tried to find one and was amazed at how particular I was about what I needed it to look like. I went into the shop at school and built a table. I did artwork until 10 or so years ago. I started a furniture company without having ever designed furniture. I got this idea that it would be fun to design furniture part time and still do all these other things. There are ideas about objects that are expressed ideally in the overtly philosophical realm of art. But there are ideas about objects that are best expressed outside that world, and furniture works for me. I felt like I needed to do something in that realm and have the pieces not have quotation marks or be shoved aside like a piece of art. The first group of furniture I designed was the first collection for Domestic, and it was amazing to be doing it as purely design, not as a piece of art. I've never taken a single design or architecture course. My education is in art. Now that I've gone back to making art, there's a certain purity about it. Earlier, there was a purity about being outside the art world and just trying to do a chair that was a chair and that was a nice chair and a table that expressed ideas of being a table. Now, I really have to do both. Because of the consuming nature of doing a small business and the responsibility of running Domestic at that time—driving trucks and selling furniture—I stopped doing artwork and I became pretty unhappy.



Record: What was the mission of your store, Domestic Furniture?
R.M.: It's something that happened over time. I never liked any new furniture that I saw, but I liked furniture so much. I wanted a company that duplicated the experience of a junk store/flea market, so to speak—a place where you were surprised and there was a sense of uniqueness to the pieces.

A lot of my inspiration comes from the kind of decision-making process that, say, grandpa in the basement or the garage would go through about how things go together. I'm not really interested in stretching the envelope—designing *the* new chair. I'm interested in the little tiny decisions and how they have meaning. How, for example, on some chairs, I curve the outside of the front leg, because it says something about the function of that leg in relation to the human body being up against it. And the fabric going around that particular corner to answer the curve. It's essentially the same kind of decision that grandpa in his garage makes too. He doesn't labor with all the theory and meaning that I bring to it.

The shop was open for seven years. At it's peak, it did $1.2 million of business per year. I was amazed at how quickly people responded to my stuff. I didn't even live in Los Angeles when the store opened. I was commuting from San Diego. There were a lot of people who got what I was doing. I would do a simple table with four legs and somehow it became signature to me: something so simple could have a personality. I did a custom door for a client. I proportioned it in my way. And people came over to the client's house and said, "Oh, that looks like Domestic." It showed how prevalent my aesthetic had become. I ended up working primarily with the end user more than architects and designers. A lot of architects bought my stuff, like Frank Israel, who bought one of my tables as his desk. What happened was I developed a handful of people who to this day I have intimate relationships with in terms of their homes and their objects. It has led to architectural and interior projects.

Record: If someone buys a piece of your furniture and then asks you to design their home, do you consider that an inversion of the typical process?

R.M.: I had done my own house [the restoration of an Irving Gill house in Los Angeles] when the Benedeks [a local couple] came into the shop and asked me what kind of sofa they should buy for their house, which they were renovating. They showed me what they were doing to the house and I told them I didn't like the plans. [McMakin subsequently designed the renovation.] My pieces have a clarity and a focus to them that seems to give people confidence in what I do. It has led to my doing things like kitchens, which are like big pieces of furniture. With some clients I become their house person. It's odd and it has caused problems. It causes problems when, for example, clients introduce me to their real estate agent and this person doesn't know who I am or what I do. It's not something I can imagine going out and deciding to do with your life. It's just sort of evolved. When I was in Los Angeles doing [residential work], I kind of hated it. It felt like I was a decorator serving affluent people. But now I've been thinking that was because it wasn't *part* of my life, it was

"THE PIECES HAVE A CLARITY AND A FOCUS TO THEM THAT SEEMS TO GIVE PEOPLE CONFIDENCE IN WHAT I DO."





The office of Getty Museum associate director Barbara Whitney (below).

A curatorial study area with a table of Western Big Leaf Maple and chairs with molded plywood backs (bottom).





The furniture in the office of Getty Museum director John Walsh (top and above) includes a desk of Western Big Leaf Maple and a walnut conference table with a veneered center panel.

One of a mismatched set of waiting area chairs (opposite) reveals white-painted feet, a McMakin touch.







McMakin made custom furniture for the Dan House in Malibu (above), which was designed by late architect Frank Israel and his firm, Israel Callas Shortridge. Other residential work includes outdoor chairs of salvaged red wood (left) and a maple dining table with painted maple chairs (below).





Hugh Davies, the director of the Museum of Contemporary Art, San Diego, has several McMakin pieces in his oceanfront office (above), including an aged white oak credenza of 1985. The chairs, the oiled elm desk, and the salvaged redwood desk were made in 1996.

my *whole* life. I felt like I was wasting my life. Now I do other things too, so that the process of serving people, trying to help people make the right house decisions, is a total pleasure and I would miss it a lot if I wasn't doing it.

Record: When John Walsh of the Getty asked you to design furniture for museum offices, did it seem like an important change of direction?

R.M.: We talked about what needed to happen. It was clear that [Walsh] wanted something from me that was more than just an interesting, stylish piece of furniture. He was talking about bigger issues [about how people work]. Even though the Getty is a huge institution, there's still a cozy intimacy [with the client].

Obviously, the Getty is very high profile and I was flattered and excited that they were coming to me. I'm happy with what I did because it achieved what they wanted and what I wanted. Initially my work was predominantly plywood, and [at the time] I was thinking of formal relationships: of how planes intersect and how something becomes a leg or something becomes a back or a top or a drawer. The wood was perfectly nice, but I'd become very focused on what the wood was. Some of my running away from Los Angeles and closing Domestic was about trying to rethink my position toward the resources and the way things got made.

"A LOT OF MY INSPIRATION COMES FROM THE KIND OF DECISION-MAKING PROCESS THAT, SAY, GRANDPA IN THE BASEMENT OR THE GARAGE WOULD GO THROUGH ABOUT HOW THINGS GO TOGETHER."

This sounds tree-hugging and dopey, but I now understand more what it means to use a material. The Getty afforded me a chance to really get into what wood is. . . . It's a turning point in my career. I couldn't keep doing this plywood furniture. The Getty gave me a scale and a scope that allowed me to do [solid wood pieces].

Record: When people talk about your furniture, they seem to react to it as if the pieces were eccentric people, almost as if they were characters that they've gotten to know.

R.M.: That's true. A few years ago Italian furniture designers got interested in American furniture and in Shaker furniture, in particular. I was looking at it—cherry furniture, pleasantly proportioned—but I kept thinking, "Why don't I like this stuff? What's wrong with it?" Thinking about these questions and knowing what I know now about the Italian furniture industry, [the answer is that] it's completely mechanized. It's in no way handmade. It's lifeless. There's no soul. This stuff is the opposite. There's enormous risk in it. Not just me taking this project on and buying trees, which could have completely sunk me financially. There was a point in time [during the design process of the Getty pieces]—before I figured out the patching [to cover the natural defects in the wood]—when I thought I'd have to sell my house. There's also the risk of the [six or seven mostly one- and two-person] workshops that made the stuff using routers and table saws—only basic tools. All that care and risk somehow comes through in the finished pieces.

Record: There's something about each piece of furniture that you design that looks both familiar and new.

R.M.: It's intentional. I understand that and try to do it, but I also think I don't know how *not* to do it. With the first group of furniture, I was trying to think about a "period." Is it Shaker or Mission or '40s? It's all, all over the pieces. For all the dumb design moves you try to come up with, you feel like you're in sort of a dream when you're designing. A lot of it is being willing to be dumb. Our susceptibility to proportions is incredibly sensitive in ways that people can't really articulate. When you look at someone's face you think about differences of 1/16 of an inch here or 1/8 of an inch there [as if the differences wouldn't matter], but the emotional hit [of a perceived difference] is tremendous. I think about that with furniture. Ask my production manager. He sees a piece of wood and he thinks it's close enough in size to what I want. It's never *close enough*.

I did a spoof of a Jean-Michel Frank sofa that is the most knocked-off sofa of the last 10 years. I wanted to do one that is the bad, clunky American version—as if dad was in the garage doing it for mom but couldn't quite get it. You look at it and you think you're seeing one of those Jean-Michel Frank sofas until you realize that the legs, instead of gracefully tapering, are in fact right out on the edge [of the base] and a little too big.

Record: What about the choice of wood? In the furniture you made for the Getty Museum offices, for example, you used a lot of Western Big Leaf Maple because, you said, it was "a wacky, unruly cousin to Meier's Eastern Maple casework." It was important that the wood come from California, since that's where the Getty is located. What about the use of decoration in your furniture? The grain gives pattern to your pieces and the patches over the imperfections almost read like tatoos.

R.M.: The patches are patterning: another color, another texture. Why does one want to decorate one's house or why does one want to decorate one's body? For me, I had to have a reason. I created this elaborate system [of salvaging seemingly unusable pieces of wood] to have a reason to decorate. I don't see myself as a Minimalist in that I want to do the plainest and most elegant of anything. I'm fascinated by the idea of creating something that's decorative, but for whatever reason it has to have meaning and reason behind it.

My one main realization is that the chair is not invisible. It's forced to look like something. You have to make decisions. . . . For me, the decoration of the furniture is about stories, a narrative. It's one of the things John [Walsh] and I were talking about now that he has the furniture in his office. He knows about the wood, why it was chosen, where it came from, and the reason for all the patches. He says he loves sitting there [with his furniture] and telling [visitors] the story of his pieces. You can't separate the design and the look of the furniture from all the stories. That's what I'm doing as a designer. Part of the reason I went through all this wood is to create the story. If I could create some kind of [high-volume] production facility, it could be a much easier way to make money, but I wouldn't know how to design that way. The patches tell the story of the furniture and they become the decoration. There's something about love in all of that. To create a story and to create something with meaning, you have to love it. That's why I can move into these familial relationships with [clients, including large institutions like the Getty] and care about them and it doesn't seem weird or goofy. ■





Risk.

Management.

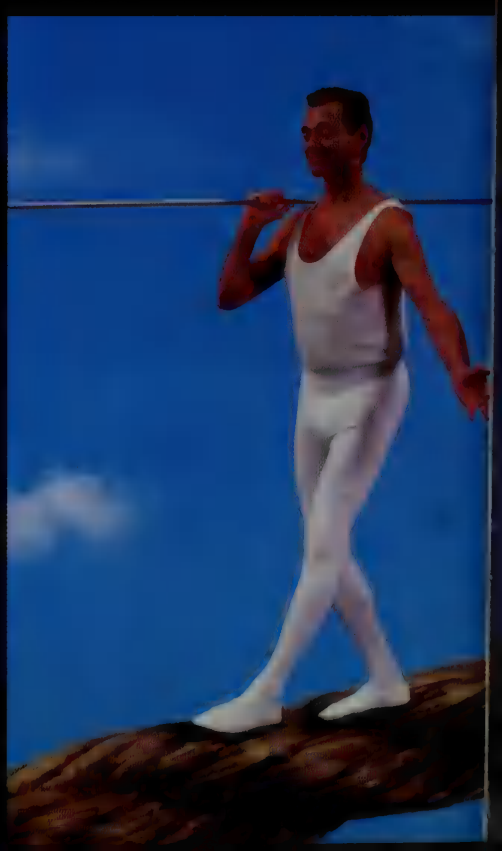
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CIRCLE 41 ON INQUIRY CARD

"When it comes to dimming, I look for products that I know are reliable. That's why I specify Lutron lighting controls."



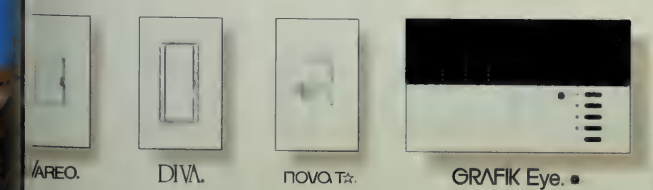
Barbara Kristiansen, Lighting Designer
Light Elements & Design, Inc., Rhode Island



Lighting designer Barbara Kristiansen knows the ultimate judge of her work is how well it functions. "I design within architectural and interior spaces to accent, reveal and illuminate. To me, dimming is crucial." Ms. Kristiansen also specifies Lutron lighting controls because of the quality of their technical support. "When you call with a question, you talk to an engineer; someone who can help you with even the toughest problems and give you *accurate* information. That's important to me and the electrical contractor."

Ms. Kristiansen also knows the importance of keeping her clients satisfied, so she appreciates the way "Lutron's aesthetic simplicity complements the surrounding environment" and how Lutron lighting controls save energy, extend lamp life, and add functionality to any location. As she says, "I know I can depend on Lutron. They're a superb company with a reliable, high-quality product. And for support – they really are the best I've found."

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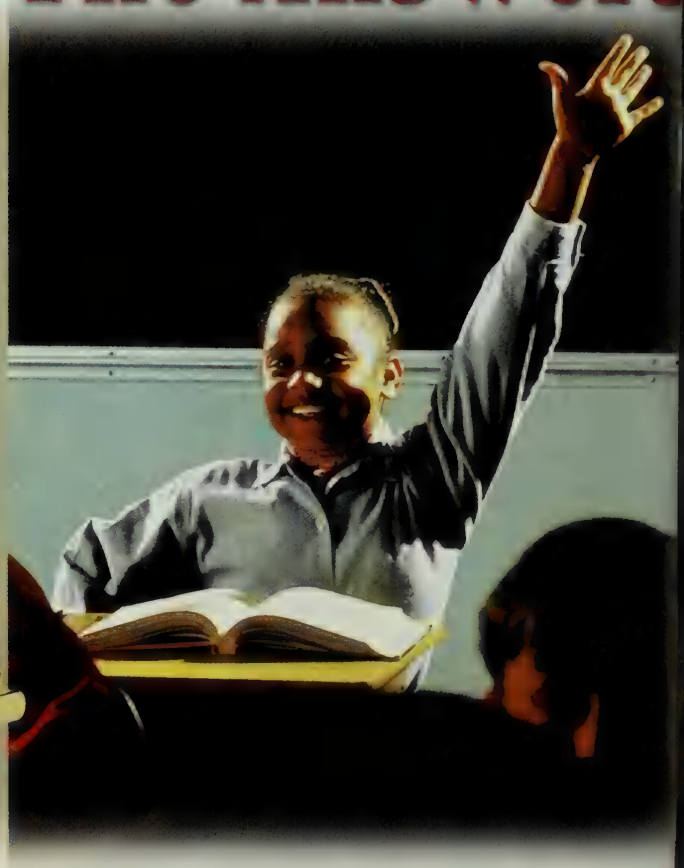
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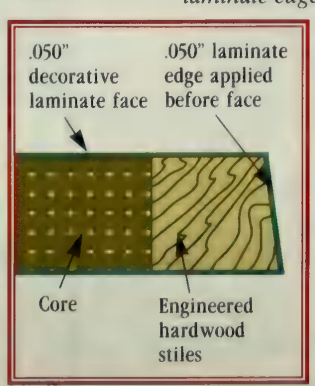


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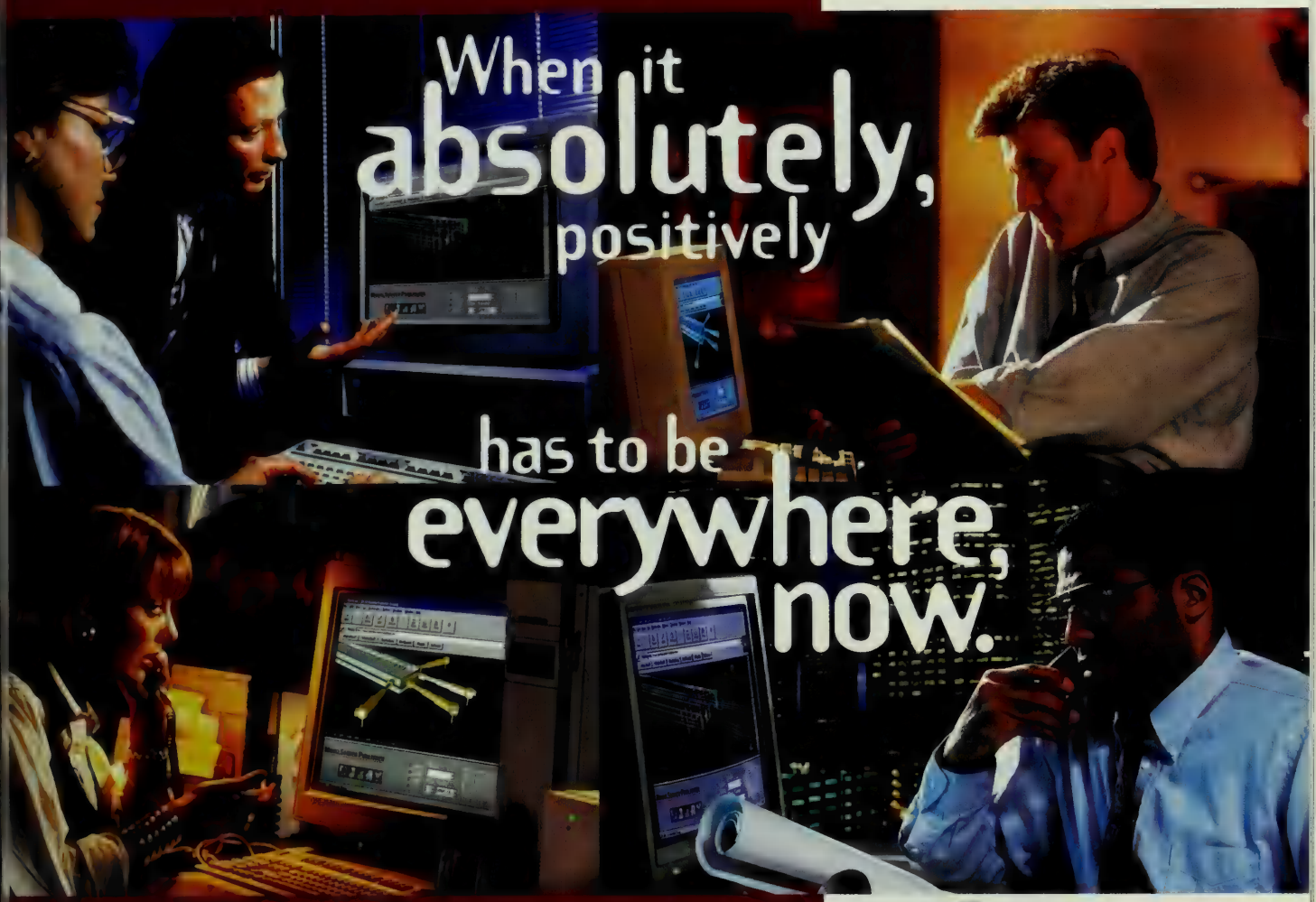
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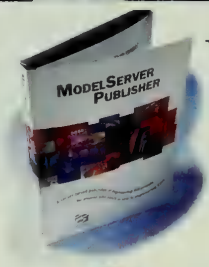
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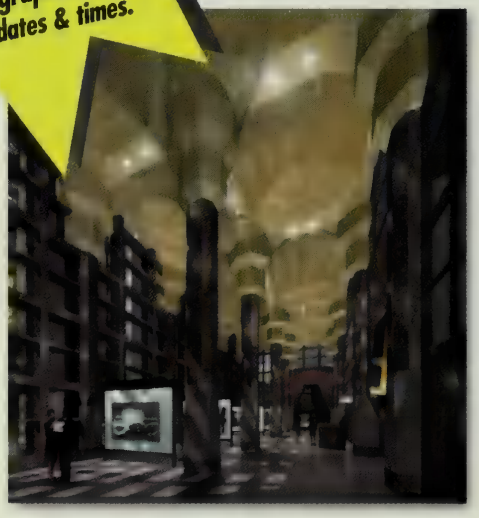
CIRCLE 46 ON INQUIRY CARD

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CIRCLE 16 ON INQUIRY CARD

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Collaboration by Wire

COMPUTER NETWORKS, PARTICULARLY THE INTERNET, HAVE MADE IT EASY AND COST-EFFECTIVE FOR ARCHITECTS, OTHER DESIGN PROFESSIONALS, AND CLIENTS TO WORK TOGETHER EVEN WHEN THEY'RE APART.

by Steven S. Ross

It should come as no surprise that architects are increasing their use of modern electronic communications, particularly the Internet, to collaborate. The major CAD software vendors, in fact, have come up with lots of fancy new software to facilitate the process. Oddly enough, however, most design professionals are using older, cheaper, and still-effective collaboration tools—tools that often come free with any modern personal computer. The newer tools are most often needed when the number of project documents requiring collaboration is large, when more than two or three professionals have to collaborate, or when the same drawing has to be modified by several people at the same time. Also oddly enough, the biggest expenses most firms seem to face when they take the plunge involve training. Hardware, software, and communications charges pale in comparison.

This article explores the issues: What is available? How does the technology work? How are design professionals using it now? What have they gained or lost in doing so? And, finally, what approaches are best for specific circumstances?

Obviously, the design process is accelerated if professionals can exchange documents more quickly,or work on the same documents at the same time. "The process speeds things up in good ways and bad ways," says David A. Mintz, president of David A. Mintz Inc., New York City– based lighting consultants. "In the old days, when someone asked where we were on a project, we could buy time on grounds the project documents were at the printer. Now, when we finish, they want it instantaneously."



Joe Conti of David A. Mintz Inc., sends drawings over the Internet via an on-line service.

MORE AND MORE FIRMS ARE COLLABORATING OVER THE INTERNET. THE BIGGEST COST IN STARTING UP ISN'T EQUIPMENT. IT'S TRAINING.

Less obviously, more documents get exchanged when you use CAD and collaborate over a network, and they get exchanged (and in the early design stages, modified) more often. Keeping track of everything can be the biggest chore of all. And the network itself allows project work to be spread across the country, or across the world. This increases competitive pressures and adds incentive to computerize in the first place.

"You can teach an old dog new tricks," says Mintz. "I've had my own firm for 32 years and was a consultant before that. I avoided the whole idea of working on computers until 1994. We held out longer than most large firms. Finally, the demands of the marketplace and one major client forced us to get some machines. I really was reluctant. Less than three years later, we're already on our second round of equipment."

All his employees—a staff of 12, including nine design professionals—use computers. "We have one small office, we call it 'the draftorium,' where they go if they absolutely by some quirk have to use a pencil," says Mintz. Otherwise, they use AutoCAD for drafting. (They still use pastels and paper for renderings.)

The Internet helped popularize this way of working. And most of the newer tools are Internet-based. But there are actually many ways for files to get from one office to another by wire. If two offices are each equipped with a modem, a computer with terminal software, and a telephone connection, for instance, one computer/modem combination can simply call another. Once the connection is established, the terminal software can manage the file transfer. Modems cost about $100 each, you already have the computer, and basic terminal software comes free, always with the operating system and sometimes with the modem as well.

Continuing Education *This month's installment of the ARCHITECTURAL RECORD/AIA Education Series looks at the everpresent influence of technology in architectural practice. Use the following learning objectives to focus your study. After reading the article, complete the questions (page 170) and check your answers (page 172). AIA members may fill out the self-report form in this issue (page 172) and send it in for two AIA Learning Units.*

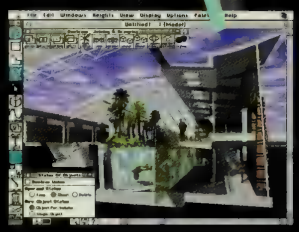
—Mark Scher, AIA Director Professional Education Products and Services

Learning Objectives

1. *List at least four rationales for electronic collaboration.*
2. *Identify the administrative and format issues involved in sharing electronic files over networks.*
3. *Create a corporate communications model based on Internet concepts and tools.*

3D architectural modeling at its best...

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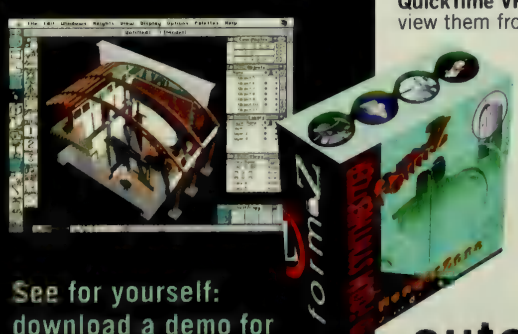
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All modeling and rendering by: **Mark Molen, Paul Helm, Dan Barringer, Rich Piloseno,** and **Shaun Breslin.**

Left, top to bottom: Office Building; NFL Stadium Concept; Military Headquarters; Banking and Data Center Concept.

Above: Zoo Exhibit Concept, Columbus, Ohio.

Below: Advertising Agency Offices, Powell, Ohio.



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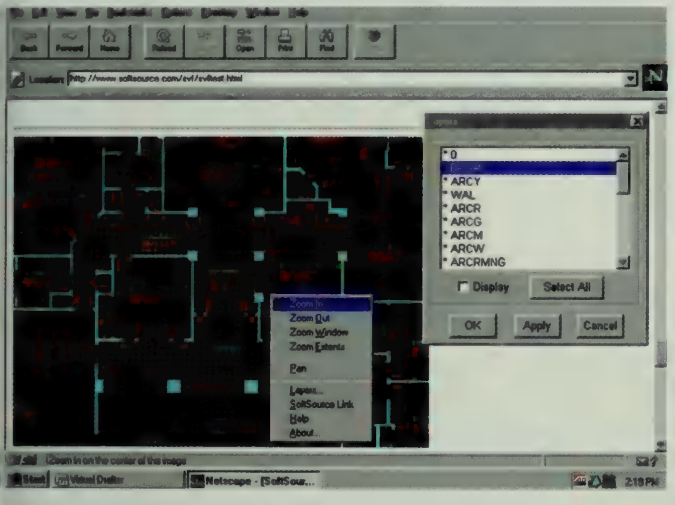
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CIRCLE 48 ON INQUIRY CARD



This Web site (above) uses Bentley ModelServer and SVF images. SVF files (below) support layers, zooms, and embedded messages.



It's cheap, and it works wherever phones work. The problem, however, is that both the sending and receiving parties have to be on line at the same time, although the receiving end can be run automatically for most functions. And it only works between two parties. Each extra office that needs the file has to be called separately. If the calls are long distance, costs mount quickly. Mintz uses automatic software so that he and some of his associates can grab files from the office from home by computer.

Large multi-office practices often use private networks to connect themselves together. The network lines can be leased from phone companies, computer companies, and other suppliers. The advantage is that users often see and exchange data with computers in remote offices as easily as with computers down the hall. These private networks (often called Wide-Area Networks, or WANs) can be linked to the Internet or to other WANs, so outsiders (clients, collaborators) can have access. The disadvantage is cost—WANs are expensive to establish and to administer. They are justified only when traffic between sites is very busy.

Why set up a complete private network, when all you really need is a connection to a large network that already exists—the Internet? The Internet is also getting to be a better bet these days because so many vendors are developing software and hardware for it. This makes the Internet, and even commercial services that use the Internet, such as America On-Line (AOL), ideal over the long term for collaboration at a distance.

"We're working on a [300,000-sq-ft] performing arts center for the University of Maryland," says Mintz. "The design architect [Moore Ruble Yudell] is in Santa Monica, the production architect is in Baltimore. The project drawings are huge."

When the project started, Moore Ruble Yudell was using a network that was so old only old-fashioned 2400 bps modems would work with it. Mintz says it was taking six or seven hours to transmit a drawing file. "We switched to AOL," says Mintz. AOL allows use of 33,600 bps modems—14 times faster—dropping transmission time to a half hour or so. An AOL account with full Internet access costs less than $20 a month.

Putting files on a network

Not surprisingly, the major CAD vendors, Autodesk and Bentley Systems, have taken the lead in providing standards for doing all this on

FILE FORMATS, FILE VIEWERS, AND UTILITIES

Without extra help, the current generation of Web browsers such as Netscape Navigator and Internet Explorer can read only a restricted set of image formats. As a result, most images you see in Web pages are GIF (Graphics Image Format) and JPEG (for Joint Photographic Experts Group, which developed the standard). Both have image compression built in, so they can be moved quickly over networks. But both are pixel formats—that is, the images are made up of individual dots. This makes them unsuitable for representing most architectural work. There just aren't enough dots in a typical Web image to show fine detail. For architectural images, you must download and install "helper applications" into your browser. They're called "plug-ins" by Netscape and "ActiveX controls" by Microsoft. Here's where to get them.

WHIP! plug-in for viewing DWG (AutoCAD binary files) and DWF (AutoCAD Drawing Web Format files). The file for the current version of this free utility, as of August 1997, is WHIP2.EXE. The 3.5 MB file (14 minutes to download at 33,600 bps) works with Windows 95, Windows NT 3.51 (with Service Pack 5), and Windows NT 4.0. The Web address for downloading is **http://www.autodesk.com/products/autocad/whip**

SVF plug-in for DXF (AutoCAD ASCII files) and SVF (SoftSource Simple Vector Format files). The free version can be downloaded from **http://www.softsource.com/plugins/plugins.html**

The latest free version, as of late July, was 1.4 (about 1.2 MB in size) and takes about five minutes to download at 33,600 bps. The more fully featured version costs $50.

As noted in the main text, **ModelServer Publisher** and other products can be set up so that you can view the SVF or DWF file first, and decide whether you need to download the much larger DWG or DXF file.

Other utilities that are useful are translators. SoftSource has translators that can convert HPGL (Hewlett-Packard Graphics Language, a vector graphics file format used to drive plotters) files into SVF on DOS or Windows systems, and on Sun MicroSystems computers. For more information, see **http://www.softsource.com/svf/tech.html**

{ CASE STUDY: MONUMENTAL VISION }

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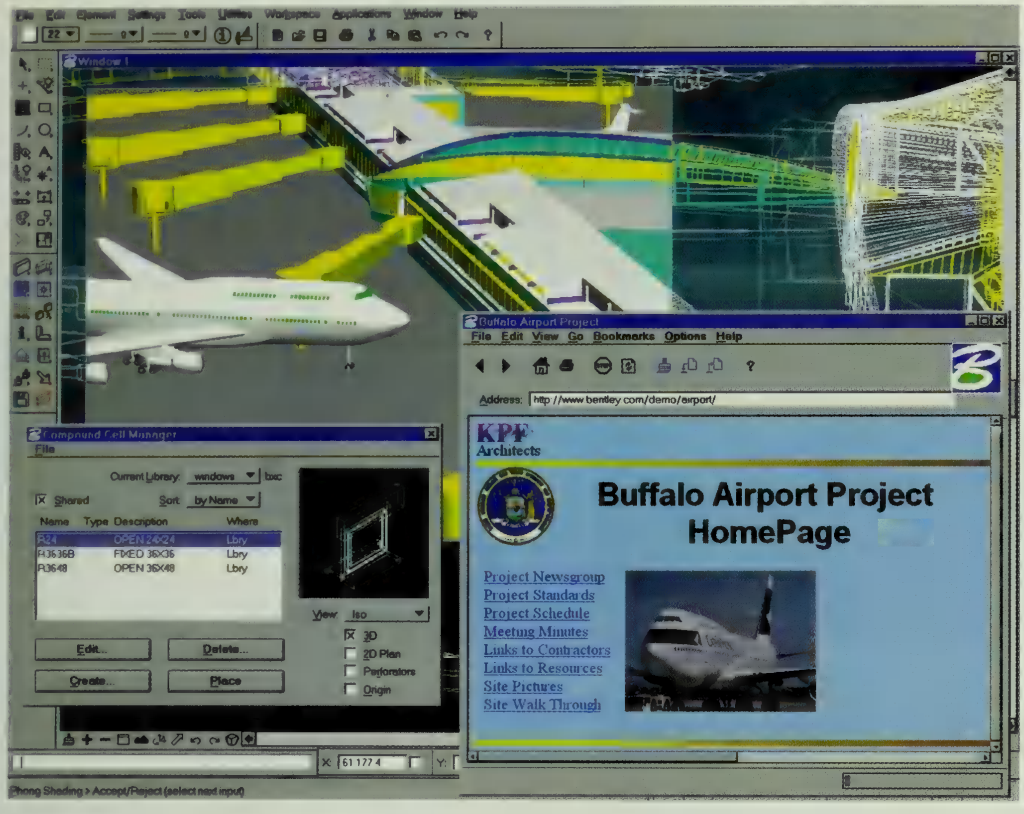
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CIRCLE 49 ON INQUIRY CARD



Bentley ModelServer Project can automatically maintain an entire project database.

the Internet. The two giants have concentrated in different areas, however. Bentley's ModelServer Publisher handles putting drawing files (including AutoCAD files) from whole projects onto a secure Web site almost automatically. Autodesk, in contrast, has developed better viewing technologies at the user end. Many other vendors have built solutions on top of the giants' work. There are also some robust ideas from companies like Intel that are not meant specifically to make architects' lives easier but have been embraced by many.

Here's how to "publish" drawings and associated files in your office so that others may use them:

Translate your files into a suitable file format. The four most common formats are DWG (AutoCAD binary files), DXF (AutoCAD ASCII files), SVF (SoftSource Simple Vector Format), and DWF (AutoCAD Drawing Web Format). Each has its advantages and viewing technology; see box, page 133, for details. DWF and SVF are 2D formats that are much more compact than DXF or DWG. Thus, they can move more quickly on networks. Also, they can accept hyperlinks to each other and to other places in your file system or your clients' systems. If you or other members of your "family" of design collaborators are using different CAD packages, they may be able to communicate via DXF. Most CAD vendors include utilities that can read or write to DXF.

Store your files where remote users can get at them. You can use an automatic "publishing" program such as ModelServer Publisher. You can also automatically process entire directories full of files using utilities built into AutoCAD 14 and available for downloading for users of AutoCAD 13 (at http://www.autodesk.com/products/autocad/whip/whippubl.htm).

Provide the proper security, so that only authorized users see the files. You can, for instance, require that users sign into your computer system with a log-in name and a password. Such security can be easily added to a telephone-accessible BBS, a Web server, or an FTP server. The Hillier Group's consultants can use Hillier's password-protected FTP site to access its files, download them to the remote site, and prepare them for viewing. The server itself is a Windows NT computer.

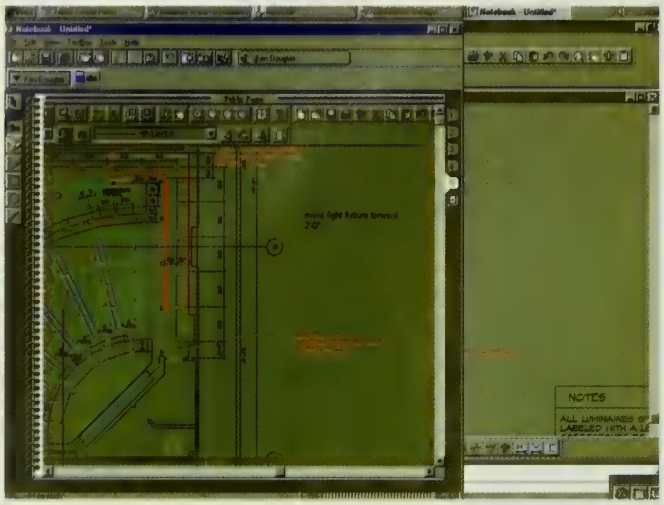
Architekton does a lot of design work for the fuel industry. Big clients such as Texaco, who have many design professionals working on projects, handle the coordination themselves. In that particular case, says Scott Harden, Architekton's Director of Internet Media, Texaco Refining and Marketing hired his firm to set up the Web site to publish drawings.

NOT SURPRISINGLY, AUTODESK AND BENTLEY HAVE TAKEN THE LEAD IN PROVIDING STANDARDS FOR PUTTING DRAWING FILES ON THE INTERNET.

"We've just signed our largest contract, to manage all their drawings, specs, imaging data, and equipment documentation for the western U.S."

Provide a way to handle modified files and notes coming back from remote users. Collaboration usually does not require a perfect back-and-forth translation of drawing files. Often, simple viewing and plotting functions are fine. Indeed, David Mintz says that as a matter of corporate policy his lighting designers "will not tamper with architects' drawings," but that despite popular notions about consultants altering drawings when files are exchanged back and forth, there was more tampering before computers came along. "In the past . . . if the architects did a minor wall change, we could trace the print and draw in a little bit of wall—messy over time, and we were drawing architecture, which we really should not do. Now, when they send a change, we have a new file. We don't have to handle it." David Mintz says he often deals with incoming drawings by making them Xref, or

With ProShare notebook, multiple users can mark up files on line at the same time, and store them for easy retrieval later.



external reference files that can be viewed but not edited, to his drawings. His drawings, in turn, are Xrefs to the architect's drawings.

His firm is doing the lighting for classroom and public spaces on five floors of a nine-story, 85,000-sq-ft classroom and office building at Columbia University, being designed by The Hillier Group. Ken Douglas of Mintz says, "We gave [Hillier] two options, one with their wall and ceiling and fixtures built in, and a fixture-only drawing they can insert as a block or as another layer in their drawing."

For CAD "we use MicroGDS," says Peter Weingarten at The Hillier Group's Princeton office. Hillier translates the GDS files to DXF or DWG so that Mintz can read them inside AutoCAD. The translation does not have to be perfect, because the transmitted drawings are almost always used for reference only, and not for further editing of the original architect's work by collaborating design professionals.

In the Texaco system, says Harden, "we cannot make changes to the site's drawing at all, and each site is specific for each project. If we make a change [in a drawing file], we send it back to them on disk, or E-mail it to someone, or send it to a company FTP site apart from the project site." Someone at Texaco then updates and merges the files.

Index everything so that old files are purged (or archived away from the active files, if you save everything) and the most current files are available for viewing.

Make sure that users have the proper viewing software. Usually this means a "plug-in" or helper application for Netscape Navigator, or an ActiveX Control for Microsoft Internet Explorer. "We've been using the SVF plug-in because its not proprietary, and it's free," says Weingarten. "We originally used the Vdraft plug-in [SVF], but WHIP! has more security features," says Harden. "WHIP! can also stream the files to users in a condensed file size. Consultants can preview the drawings [in DWF format] before they download them."

Make sure users can handle your layer scheme, pen widths, fonts, and other drawing features. Most users will end up printing or plotting the files they need, and looking at them on paper. "The biggest confusion we have is in layering standards," says Douglas. "All the architects have dif-



ferent standards. No one seems to follow the AIA's format. You often get drawings with layers with names on them—like 'Bob's layer.' Also people find obscure fonts, without regard to whether the receiver has the font."

"We compensate by creating mapping tables for our drawing layers," says Weingarten. Scaling inside drawings is another major issue. AutoCAD users, for instance, normally draw full-scale. "We draw at quarter-scale, which MicroGDS calls 48. We multiply by 12 to get full-scale, creating drawings at MicroGDS 576 [that is, 48 times 12] before translating and posting the file," says Weingarten.

The virtual office

Aside from publishing files, you may want to work with a remote collaborator on the same file at the same time. One solution is provided by Graphisoft, which introduced its ArchiCAD TeamWork package this summer. With TeamWork, multiple users "fence off" the areas of a drawing they wish to edit. Each user's fence marks the user's area off-limits to others. But adjacent areas can be marked off by other users.

The product works on any platform running ArchiCAD, so users can collaborate even if one is using a Windows 95 computer and another is using a Macintosh. The drawing files themselves are downloaded to the users' own machines, so edits can be made quite quickly and the network connection does not have to be continually open. When users save files back to the original repository (which can be and usually is on one of the users' machines rather than a server), each section of the file is updated separately, so an old section doesn't overwrite a new one, and they can continually transmit new updates so that even though users are far apart, each can see what the other is doing to the drawings.

ArchiCAD TeamWork has multiple security levels and can support Xrefs on import and export. Right now, it can handle AutoCAD DWG versions through Release 13.

More often, you'll want to have several collaborators mark up a project's file without actually changing it, and there are many architect-specific "redlining" packages to do that. One more general solution is Intel's ProShare, which allows numerous users to simultaneously view

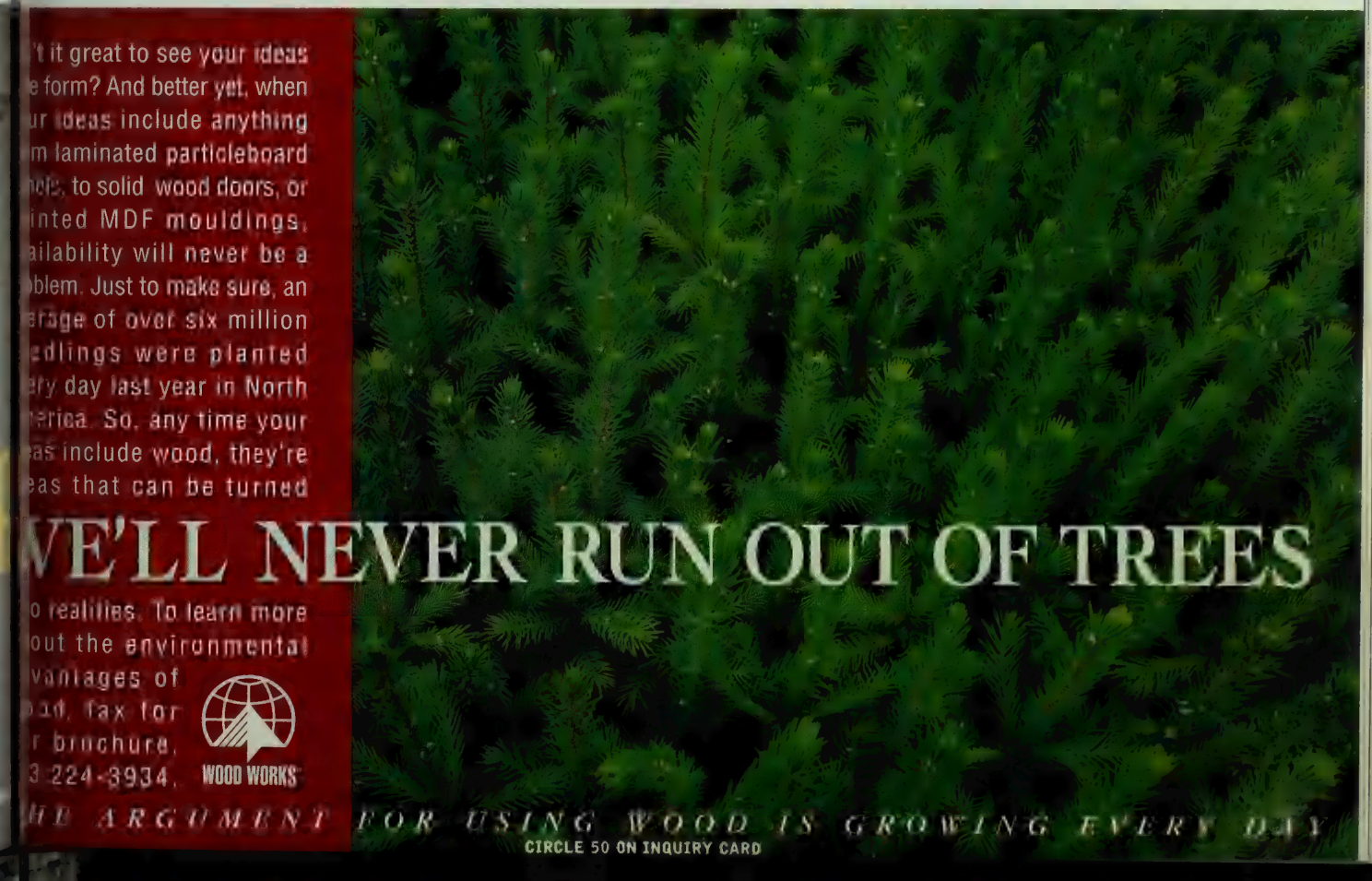
THERE WAS MORE "TAMPERING" BEFORE COMPUTERS CAME ALONG.

and mark up the same file; it also has a video-phone connection, so users can see each other. Views can be stored as ProShare "notebook" pages and referred to later. Actual changes in drawing files have to be done manually.

The payoff

Architekton, with more than 50 employees (including 15 architects) in five offices, learned about the advantages of computer communications fairly early. As a result, it found expansion into multimedia projects and Internet services quite natural. "The architecture group has benefited from having these types of services, this synergy," says Harden. "We've picked up some projects because we offer some of these services."

"I can't quantify specific savings," says David Mintz. "We find that our fastest people can do a layout a bit faster on the computer than on paper, and some people are slower. When we design a custom fixture, we still sketch it by hand first. We save time on dimensioning, and the real win comes in the modifications, not the original drawings. Working by computer is something we have to do. If we didn't do it, we would not be in business. Clients demand that we work by wire. Clients need it." ■



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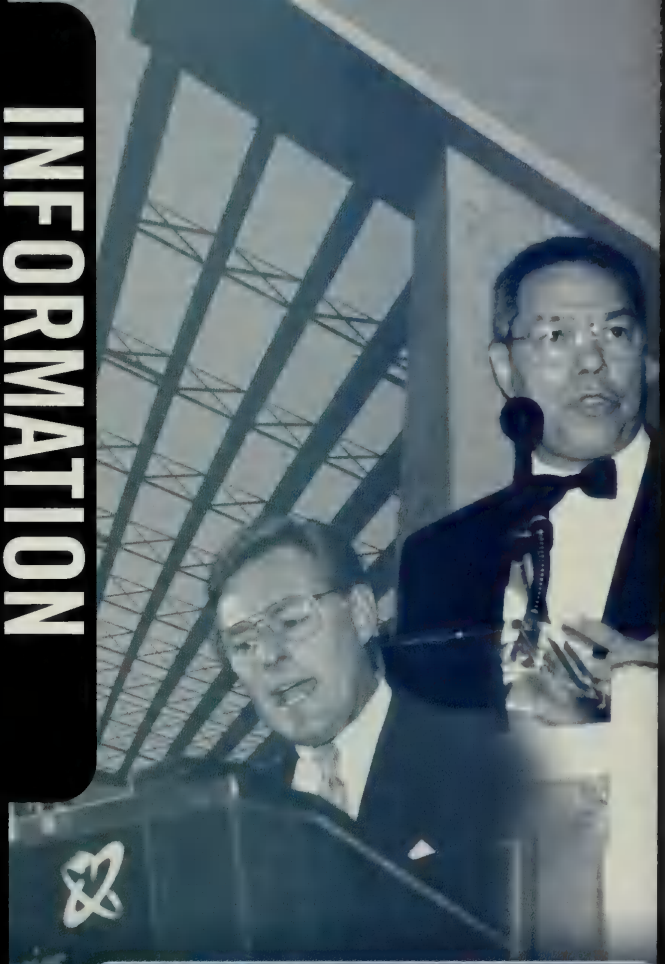
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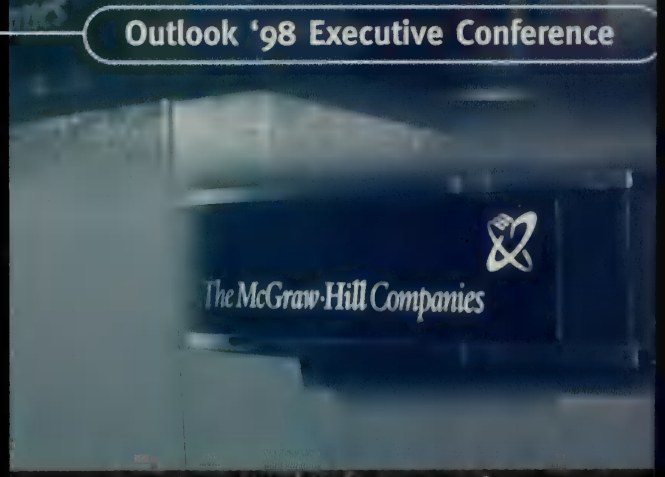
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CIRCLE 53 ON INQUIRY CARD

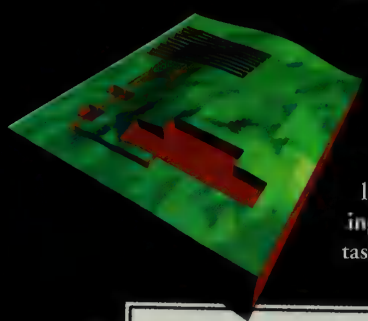
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NEW PRODUCTS

New Products this month highlights doors and entrance systems for commercial, institutional, and residential use. On this page, there's a high-style, "seamless" entrance (one recently placed in the F.D.R. Memorial in Washington, D.C.) appropriate for prominent locations, and ■ more workaday folding automatic door that helps speed shoppers into markets and convenience stores. We discuss recent entrance-code changes on page 144. September's Product Briefs include kitchen "workstation" furniture from a firm founded by architect David Beer and a hidden plumbing vent that keeps rooflines clear. And the Literature coverage lists a free guide to ways of saving existing trees on building sites.
—Joan Blatterman, New Products Editor

A SINGLE PIECE OF METAL CREATES A SEAMLESS ENTRANCE



Brite Vue, a division of the Kawneer Company since 1989, is now marketing a "seamless" cladding option for many of their entrances. Answering architects' requests for a more striking aesthetic in a commercial high-abuse entrance, the smooth-surfaced configuration was developed from custom doors created for high-profile projects such as the Swiss Embassy in Washington, D.C., where Brite Vue fabricated a patinaed copper entrance with bulletproof glass infill.

Made of a single sheet of 18-gauge metal blanked out and formed as a cladding over the stile and rail structure, the door has no visible horizontal or vertical joints in the frame, and on-site welding is minimal. This smooth cladding can be specified in stainless steel, muntz metal, copper, and several commercial bronze alloys in a choice of satin, antique, or mirror finishes. The single-piece exterior also adds an extra degree of structural strength; cladding can be upgraded to 16-gauge metal for projects needing an even higher level of durability. The original seamless door product matched the metal selected for the cladding with the metal of the frame itself: stainless-steel cladding over a stainless-steel door. In order to reduce costs somewhat while maintaining the aesthetics, a value-engineered version puts the seamless finish-metal cladding over a structural aluminum frame. The seamless option is available in almost any type of Brite Vue door, including swinging, balanced, bottom rolling, top-hung stacking doors, or revolving door wings.



Tempered-glass infills can be specified with a ceramic-frit or etched design in thicknesses from 1/4 in. monolithic up to a 1-in.-thick insulating unit. Pulls cast from a solid-metal bar can match the metal selected. The entrance shown, by architects of record MHTN Architects, Inc., Salt Lake City, creates an enclosed lobby from a former breezeway between buildings. 800/423-1885. Brite Vue Glass Systems, Inc., Kawneer Company, Inc., Visalia, Calif. **CIRCLE 250**

FOLDING PANELS FIT AN AUTOMATIC DOOR INTO TIGHT SPACES

Introduced in England in 1993, Dor-O-Matic's Astro-Fold automatic door has been available in the U.S. within the last two years. Particularly suitable for high-volume traffic in public offices, convenience and department stores, and supermarkets, the bi-fold door design provides an unimpeded entry space of 5 ft 10 in. within an 8-ft span, the same pedestrian access offered by sliding doors that need a 14-ft span. Unlike swinging doors, the swing radius allows two-way traffic; as the doors fold to the sides of the opening, sidewalk guard rails aren't needed.

In addition to its space-saving footprint, the Astro-Fold needs a minimal amount of clearance and prep work in an existing opening. Custom colors may be specified, as well as the company's standard aluminum paint finish options. Doors meet all ADA access codes, ANSI and NFPA egress requirements, and Florida's Dade County high-wind code. 800/543-4635. NT Dor-O-Matic, Harwood Heights, Ill. **CIRCLE 251**



Automatic functioning is powered by a full-size swing-type operator that folds right- and left-hand sections of the door at the same time. Folding points and pivots are shielded by a black-vinyl "finger guard" strip; motion detectors on both sides open the door as traffic requires. A threshold safety scanner covers the blind spot in the dead center of the door.



DOORS MUST MEET NEW STANDARDS

Residential doors (including garage doors) and commercial entrance systems intended for use in southern Florida must now pass the impact- and pressure-cycling tests originally established by metropolitan Dade County following the devastation of hurricane Andrew. In June, many provisions of this code were also extended to the Gulf Coast of Texas. This high-wind standard requires that doors be tested as complete opening assemblies with frame and hardware; a failing grade is often caused by the latch mechanism, which can pop open under impact. Most of the changes made to doors after this test involve strengthening the lock and strike components.

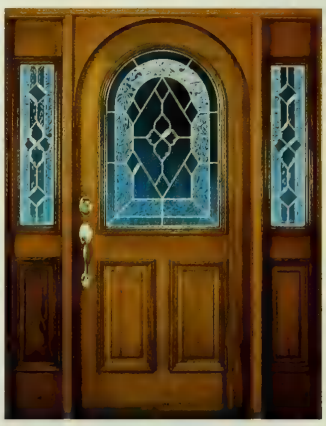
Hurricane-resistant products, ADA guidelines, and life-safety codes are some of the industry issues to be discussed at the Door and Hardware Institute's annual convention and trade show, being held this year in Charlotte, N.C., September 27–29. Exhibits will display new architectural and security hardware, and door systems for commercial, institutional, and multifamily projects. There will be a seminar on the design and hardware implications surrounding the new requirements for positive-pressure fire testing of interior doors (RECORD, October 1995, page 46). 703/222-2010.

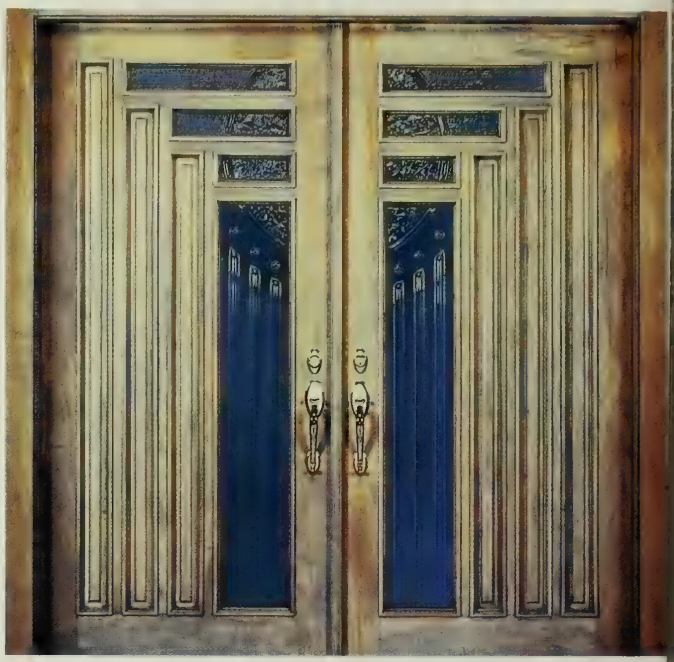
The thermal and air-infiltration requirements of the Model Energy Code for one- and two-family dwellings (now referenced by all national building-code agencies) will also affect door specifications. Architects should consult the National Fenestration Ratings Council (301/589-6372) for performance data. *—J.F.B.*



▲ New doors with old details
A renovation by architects Perkins Geddis Eastman of a prominent Fifth Avenue building involved the fabrication of this bronze entrance in an ADA-compliant system that replicates period ornamentation and paning: the metalworkers' specialty. 801/280-2400. Historical Arts & Casting, West Jordan, Utah. **CIRCLE 252**

▼ Prehung solid-mahogany
Shown with triple-glazed sidelights, a new 36-in.-wide entry is made of solid mahogany in a rounded-top style furnished complete with a matching jamb, prehung and ready to install in a standard, squared opening. 616/772-9111. ODL Inc., Zeeland, Mich. **CIRCLE 253**





▲ New wood in new colors
Dramatic residential door designs can now be specified in hard maple as well as oak and mahogany, in a range of five new color options, including Blue Alp Mist, pictured. Glass lights and carved-wood panels are assembled using mortise-and-tenon construction. 800/877-9482. International Wood Products, Klamath Falls, Ore. **CIRCLE 254**

► Two for the money
EFCO's new sleek slider for residential and multifamily use is available in two versions. Series 3014 is a hurricane-resistant door made with laminated glass and an edge capture sufficient to pass Miami-Dade's stringent wind-blown debris and pressure-cycling tests. A thermally efficient model, 3015, lets the architect select a paint color that works with other exterior materials for the outside of the door, and a different color for the interior. A new feature on both sliding doors: a full-length, integral pull handle that doesn't clutter the lines of the frame. 800/221-4169. EFCO Corp., Monett, Mo. **CIRCLE 255**





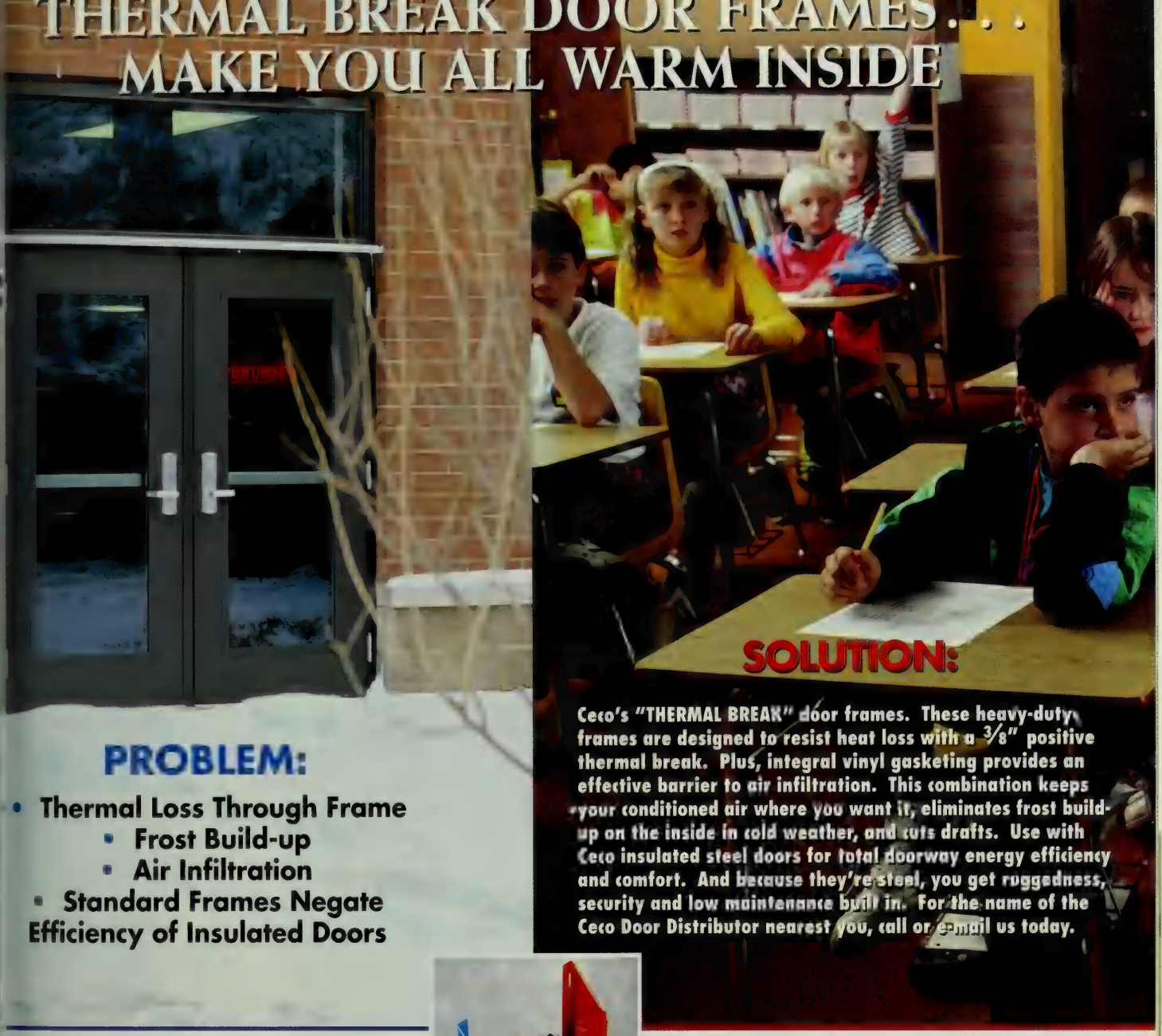






◄ Architectural doors in color
Expanded stain options are said to help the designer make a visual statement through the use of consistent color when specifying doors. Shown on oak, the line offers shades such as nutmeg, seafoam, raisin, and earth. 800/869-3667. Weyerhaeuser Door, Marshfield, Wis. **CIRCLE 256** ■

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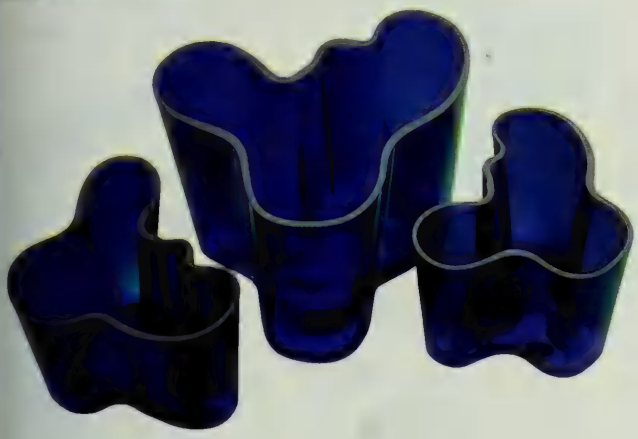
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CIRCLE 57 ON INQUIRY CARD



◄ Icon revisited

Knoll's office-accessory collection, KnollExtra, offers Finnish architect Alvar Aalto's classic vase, still looking fresh and new after 60 years. The line also includes Smokador and other desktop accessories; Orchestra panel-mounted and freestanding work tools like tape dispensers; ergonomic automation helpers such as articulating keyboards; and an International Collection of "boardroom accessories"—wine coolers and ice buckets. A binder illustrates all pieces. 800/445-5045. The Knoll Group, Grand Rapids, Mich. **CIRCLE 260**



▲ Frames for contract artwork

A metal profile more interesting than standard hotel-issue frames, Innovation Mouldings come in nine shapes and 16 anodized colors. Priced for hotel, corporate, and institutional spaces. Nielsen & Bainbridge, Paramus, N.J. **CIRCLE 262**



▲ Encaustic effect

Impronta's Latina re-creates geometric and floral motifs in the matte colorations of traditional encaustic materials. For use on both floors and walls, the ceramic tile comes in an 8-in. size with coordinated borders and inserts. 847/480-7407. MTA, Northbrook, Ill. **CIRCLE 257**

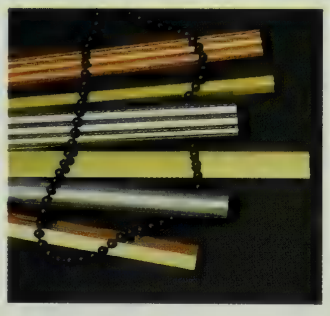
▼ Metal-clad moldings

Trim of brass, chrome-plated steel, copper, and bronze formed over a solid-wood core can be ordered in hundreds of different profiles and combined to create chair rails, crowns, bases, cornices, and other architectural elements. Moldings can be used indoors and out; metal surfaces are coated to resist tarnish. Samples: 508/778-6382. CMF/ Colonial Moulding, Hyannis, Mass. **CIRCLE 259**



▲ Architectural scene-setting

B&B Italia let New York architects Peter Stamberg and Paul Aferiat turn the Italian furniture manufacturers' showroom into a kaleidoscope, selecting colors of pool blue, aqua, and chartreuse for pieces such as Melandra dining chairs, shown above with the Atavola glass-top table. B&B Italia USA, Inc., New York City. **CIRCLE 261**





▲ Son of Tizio

Designed by Hannes Wettstein, the Spy desk lamp has a fully adjustable shade-set on an extruded-aluminum arm in a steel base. Standard finish is metallic-gray lacquer. For incandescent or halogen bulbs. 516/694-9292. Artemide, Inc., Farmingdale, N.Y. **CIRCLE 263**



▲ High-tech laundry

The commercial look is creeping from kitchen appliances into the laundry. Amana's new equipment combines stainless-steel industrial styling with a new front-loading, tumble-action washer that uses much less water and frees its top to work as a counter. Doors are set higher for easier access. 800/843-0304. Amana, Amana, Iowa. **CIRCLE 258**



◄ Furniture for the kitchen

Architect David Beer describes his well-crafted, freestanding pieces as "kitchen workstations." Furniture is dual-function: for example, this farmhouse-style unit hides a full-size dishwasher behind flipper doors. The cabinet above the sink is tall enough to conceal small appliances such as a coffee maker behind sliding milk-glass panels; cabinets are deeper than the appliances to provide more functional work surface. The flat-front soapstone sink blends into the cabinetry. Other Beer designs include an armoire that opens to display a sink, fridge, cooktop, and microwave. 610/838-1194. YesterTec, Center Valley, Pa. **CIRCLE 264**



◂ Functional office art

The Sculpture Collection, a new line from Peter Pepper, includes European-made coatracks, hat shelves, hangers, and wall tables that provide a place for holding garments in reception areas, offices, or homes. Light in scale, the pieces need only a little floor space, and combine a decorative flair with their coathook duties. Materials used include stainless steel, satin-finish aluminum, polished and frosted glass, chrome, and natural woods. 310/639-0390 (phone); www.peterpepperproducts.com (Web page). Peter Pepper Products, Inc., Compton, Calif. **CIRCLE 266**



▾ Out-of-sight plumbing vent

A replacement for standard vent pipes that have to penetrate roofs to handle sewer gas and prevent backflow, the Studor air-admittance valve can be installed beneath a counter, behind a wall, or in an attic (below). Guaranteed for the life of the plumbing-drain system itself and approved by all building-code jurisdictions in the U.S., the valve operates on negative pressure: when a plumbing fixture is operated and water drains out, the negative pressure generated opens the valve and lets air enter to equalize pressure. When the flow stops, gravity closes the valve; fixed screens keep vermin out. 800/447-4721. Studor, Dunedin, Fla. **CIRCLE 267**



▴ Leather-wrapped interiors

A source of contract leathers from Italy, Spinneybeck is now offering Architectural Applications, a line of new design uses for leather, such as handrails and wall panels, which take advantage of the material's unique tactile and aesthetic qualities. For handrails, 1-in.-wide leather strips are overlapped to create an even thickness and glued to a standard rail. Even when constantly handled, leather needs only minimal care. 800/482-7777. Spinneybeck, New York City. **CIRCLE 265**



▴ "Sea-tumbled" cabinet pulls

Beach Collection knobs have rounded shapes that look like sea glass or water-worn stones. Cobalt, amethyst, and green polymer pulls are translucent; sandstone and black "rocks" are opaque. 800/451-0410. Forms + Surfaces, Carpinteria, Calif. **CIRCLE 268**

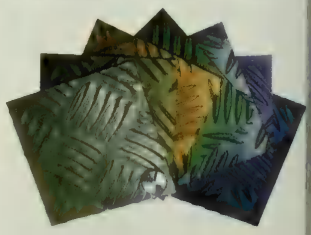


▴ Celtic Renaissance pendant

Custom 5 1/2-ft-high chandelier made for Old St. Patrick's demonstrates this Chicago firm's fabrication expertise. New Metal Crafts, Chicago. **CIRCLE 269**

▾ Metal-look resilient flooring

A new floor pattern, Treadplate metallic vinyl replicates the appearance of raised-pattern industrial safety flooring. Offered in an 18-in.-square tile format, the flooring is appropriate for both heavy-traffic commercial and residential spaces. Solid-color Lunar comes in matching shades. Amtico, Atlanta. **CIRCLE 271**



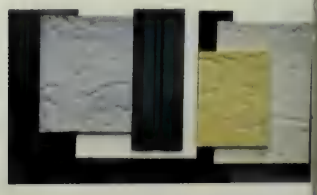
▾ Chameleon silicone seal

Designed as a repair for failed joints in EIFS, metal curtain wall, and roofing, the 123 preformed silicone seal system is now offered in new texturing, finish, color and custom-design options that help it blend with more substrates. Dow Corning, Midland, Mich. **CIRCLE 272** ■



◂ Excitement to order

A New York City workshop creates props for interior architecture—special pieces that add a surreal or exciting touch to exhibits, retail stores, restaurants, even burrito bars (left). Here, cast fiberglass was used to create a surfboard takeout counter. Materials used include resins, wood, metal, and bronze; neon-lit cast-terrazzo bar tops are a signature item. 212/295-7763. ATTA, Inc., New York City. **CIRCLE 270**



PRODUCT LITERATURE

Efficient windows and doors

The National Fenestration Rating Council's (NFRC) *Certified Products Directory* provides accurate energy-performance ratings for windows, doors, and skylights. Listings give descriptive information and thermal-transmission data for over 30,500 certified products. The 1996 edition offers solar heat-gain coefficients for the first time, an important consideration where cooling loads are primary. NFRC ratings permit direct comparisons between products, and give optical and thermal numbers that can be used to determine whether a product meets state or local codes. For more information: www.nfrc.org/nfrc.html (Web page) or 301/589-6372. NFRC Inc., Silver Spring, Md. **CIRCLE 273**

Woodwork standards

Described as "the only reference work anyone specifying architectural woodwork will need," the seventh edition of *Architectural Woodwork Quality Standards Illustrated* includes a full set of molding profiles, cabinet details, and a summary of the fire code. Detailed drawings suggest design ideas and profile combinations. Architects are invited to become affiliate members of the Architectural Woodwork Institute (AWI) for a fee of $50, and receive the $75 *Standards* at no additional charge. 703/733-0600. AWI, Reston, Va. **CIRCLE 274**

Fire-resistant panels

A brochure explains how AFM's new Firefinish structural panel offers a factory-applied thermal barrier on the oriented-strandboard surface. Meeting code requirements for a 15-minute fire barrier, the Firefinish interior side is ready for paint or other decorative treatment. 800/255-0176. AFM Corp., Excelsior, Minn. **CIRCLE 275**

Architectural doors

A catalog on the Maiman door describes stile-and-rail doors with 45-, 60-, and 90-minute fire ratings. Labeled doors are offered in over 70 different wood species and 18 profiles; all can be premachined for concealed vertical rods and electric strikes. 800/641-4320. The Maiman Company, Springfield, Mo. **CIRCLE 276**

Save that tree!

Available free in limited quantities, *Building Greener Neighborhoods* stresses the value of saving existing trees and planting new ones in developments on large suburban tracts as well as on the infill sites vital to urban forestry. The 120-page book explains how to identify the trees worth saving, and demonstrates construction and grading methods least likely to harm them. Published by American Forests (formerly the American Forestry Association) and the National Association of Home Builders. 800/223-2665. Washington, D.C. **CIRCLE 277**

Flush wood fire doors

An eight-page catalog supplies architectural details on 90-minute double-egress doors. 800/678-8910. Algoma Hardwoods, Inc., Algoma, Wis. **CIRCLE 278**



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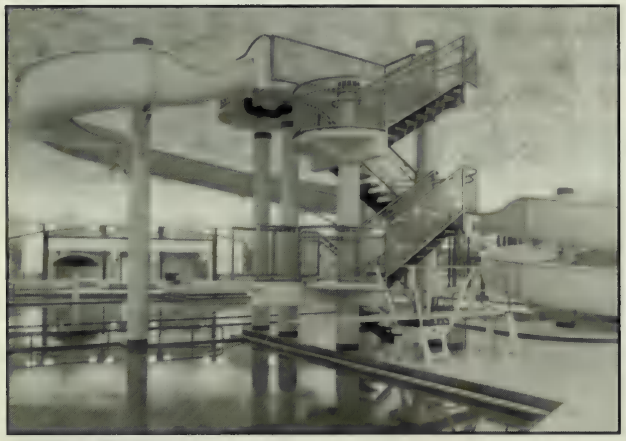
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PRODUCTLITERATURE



Through-wall-flashing guide

Written for contractors as well as architects, a technical manual on FlashGard flashing (pub. 5028) describes the flexible EPDM membrane and details its use at copings, door headers, or windowsills to prevent water penetration and promote drainage. Includes 25 details. 800/428-4442, ext. 7084. Firestone Building Products, Carmel, Ind. **CIRCLE 279**

Recycled building products

A "buy recycled" guide for the design and construction industry, *Building for Tomorrow* gives clear information on incorporating recycled products in building projects. The guide has case studies, examples of recycled-content building materials, and directories of materials, and it explains how to set up a "buy recycled" program. 703/683-9025. National Recycling Coalition, Alexandria, Va. **CIRCLE 280**

Water-based wood stain

A new product, WoodScapes house stain is said to give a long-term, fresh appearance to vertical siding, fascia, shakes, and shingles. Available in an acrylic solid color or a polyurethane, semi-transparent finish, water-based coatings are described as being easier to apply than conventional latex stains. A catalog insert illustrates all colors. The Sherwin-Williams Co., Cleveland. **CIRCLE 281**

Architectural metal CD-ROM

Now available in electronic format, Julius Blum's catalog covers handrails and guardrails in aluminum, stainless steel, and bronze, all types of specification finishes, and details the nonwelded Connectorail pipe-railing system, which joins components using concealed mechanical fasteners. Also included: glass balustrades and PVC handrails. Free Windows-based guide available. 800/526-6293. Julius Blum & Co., Inc., Carlstadt, N.J. **CIRCLE 282**

Fabrics in architecture

Published by the Industrial Fabrics Association International (IFAI), an annual *Designers Guide* has over 100 pages on architectural fabrics—for awnings, air-supported and tensile structures, and tents—along with full technical and performance data on specific fabric types. Materials are grouped under headings such as fiber type, durability, aesthetics, and the material's compatibility with various graphics techniques like silkscreening. IFAI member contractors are listed. For subscription information ($21 per year): 800/225-4324. Fabrics & Architecture, St. Paul, Minn. **CIRCLE 283**

Window-design software

CarCAD 3.0, the newest version of Caradco's specification and detail program for wood windows and patio doors, now has an on-line project file illustrating current installation ideas. Available free of charge. 800/238-1866. Caradco, Rantoul, Ill. **CIRCLE 284** ■

ARCHITECTURE + ENERGY

1997 Design Awards

DESIGN AWARD FOR ARCHITECTURAL CONCEPTS AND MATERIALS

REI Flagship Store
Seattle, WA

Architect / Firm
Mithun Partners, Inc.
Seattle, WA

Contractor
Gall Landau Young
Bellevue, WA

Engineers
MacDonald-Miller and KPFF
Seattle, WA

Lighting / Energy Consultant
Cadela and Cross Engineers
Seattle, WA

Owner
Recreational Equipment, Inc.

Photographer
Robert Pisano
Seattle, WA



Jurors

Robert Berkebile, FAIA

Charles C. Benton, Associate Professor

Nancy Clanton, P.E.

Charles Eley, FAIA, P.E.

Harry Gordon, FAIA



In its fifth year of the Architecture + Energy design awards program, the submissions continued to demonstrate a variety of solutions for energy conservation. The jurors recognized a range of strategies for energy conservation, as well as the missed opportunities. These projects remind us of the notable challenges of integrating the architectural approach to the client's program and an engineering approach to the building systems. Winning projects demonstrated energy efficient design, use of daylighting, efficient mechanical and lighting systems, and resourceful use of materials.

The REI Flagship Store impressed the jury with its clarity and consistency of architectural concepts and thoughtful selection of building materials. A strong sense of natural light is apparent throughout the two-story space. Clear design organization leads the customer through a sustainable landscaped bike test trail area, to an exterior stair, and finally through an entry area and "climbing tower" that buffers temperature differences between the exterior and interior.

Throughout the building, it is evident that materials have been selected for aesthetic and environmental reasons. Examples include recycled steel railings, salvaged industrial sash use of interior windows, stone salvaged from a closed quarry, and engineered wood products made from post-industrial waste products. Finishes are spare, with low emissions of volatile organic compounds.

The "climbing tower," which is part of the entry sequence, also acts as a thermal chimney. Warm air rises, tempering instead of full conditioning with air that is discharged from the retail space. Rainwater is recovered from roof surfaces and used as a waterfall in the courtyard, masking the sound of a nearby elevated roadway.

Harry T. Gordon, FAIA



DESIGN AWARD FOR ENERGY EFFICIENCY

Pacific Gas Transmission Building
Portland, OR

Architect / Firm
Group Mackenzie, P.C.
Portland, OR

Contractor
Hoffman Construction Company
Portland, OR

Lighting / Energy Consultant
Interface Engineering
Portland, OR

Owner
Gerding/Edlen Development Co.
Portland, OR

Photographer
Randy Shelton
Architectural Images
Portland, OR



The eight-story Pacific Gas Transmission building, an encyclopedia of modern energy efficient design strategies and technologies, is headquarters for Pacific Gas Transmission Company in Portland, Oregon.

The building envelope uses high efficacy glazing, tuned for different facade orientations. Although the structure's glazing has low-e coating, each facade's coating type is selected to achieve the right balance between solar heat gains and day-lighting benefits. Lightshelves on the south facade bounce daylight deep into the building while a narrow building perimeter provides daylighting for most of the office workers.

Efficient T-8 lamps, electronic ballasts, and luminaires are incorporated in the electrical lighting system. Many of the building's public areas utilize direct/indirect luminaires, while recessed parabolic luminaires are employed in office areas.

Photocells in perimeter zones measure total illu- nation and dim electric lighting until the desir- light level is reached. Occupant sensors turn of lights when spaces are not occupied. A variable volume HVAC system combines many features th minimize energy use, including cold air distribu (44°F), variable frequency drives and efficient ducts/diffusers. The central plant uses efficient electric chillers with ice storage tanks which produce ice during off-hours used for cooling throughout the day. An energy management system optimizes system performance.

In addition to reducing utility energy, the buil has a chute that helps recycle office products, indoor bicycle parking lot and shower facilities for employees.

Charles Eley FAIA, PE

DESIGN AWARD
FOR REUSE AND RENEWAL

Widmer Bros. Brewing Co. Expansion 2
Portland, OR

Architect / Firm
Mark Garvey, AIA
Portland, OR

Contractor
R&H Construction
Portland, OR

Engineers
Berry Nordling
Portland, OR

Lighting / Energy Consultant
Glumac International
Portland, OR

Owner
Widmer Bros.Brewing Co.
Portland, OR

Photographer
Steve Cridland
Portland, OR





In every project brief there are the seeds of a sustainable response. In the case of the Widmer Brother's expansion, Mark Garvey deftly acknowledged the context of the brewery's historical commercial neighborhood and the fermentation process itself. The architectural solution is admirably restrained.

The project involves two buildings. The 11,500 square foot Widmer brewing expansion is new construction woven into a neighborhood of multi-story masonry structures through the selection of facade proportions and exterior finishes. It is complemented by the remodeling of an existing 14,300 square foot bottling facility with minimal changes to its exterior fabric.The new brewing facility's spatial organization and thermal character embrace the beer-making process. Solutions for gathering, transporting and storing brewing ingredients, and removing waste for agricultural recycling are visible in the building's plan and elevations. The mechanical support required for brewing processes is sophisticated, involving storage tanks for thermal energy recovery. Once heated or cooled, the brewery's process water is recycled many times, thus conserving water and energy.Compared to the mechanical intervention for the brewing systems, the building spends little energy for occupant thermal comfort. Small ventilation systems provide unconditioned make-up air in the summer and air warmed enough in the winter to prevent the sprinkler pipes from freezing. Employees adapt by varying clothing, adjusting operable glazing, and operating small spot heaters.

The facility's accessible perimeter allows daylight to enter in moderate quantities. Electric light is largely provided through modest high-efficiency fixtures. Much of the natural light successfully displaces electric light. In all, the designer cleverly played the hand he was dealt to produce a building that convincingly expresses process recycling and low energy in a comfortable and convincing manner.

Professor Charles Benton



MERIT AWARD FOR ENERGY EFFICIENT LIGHTING

City of Portland Bureau of Environmental Services Water Pollution Control Laboratory
Portland, OR

Architect / Firm
SERA Architects
Portland, OR

Contractor
US Pacific Builders, Inc.
Beaverton, OR
Miller/Hull Partnership
Seattle, WA

Engineers
KPFF Consulting Engineers
Portland, OR

Lighting / Energy Consultants
PGE Commercial Energy Efficiency Program, Charley Brown, University of Oregon, and CH2M Hill
Portland, OR

Owner
City of Portland
Bureau of Environmental Services

Photographer
Strode Eckert Photographic
Portland, OR

Direct/indirect electric lighting and good use of track lighting in the laboratory offers balanced lumination on the tables and ceiling. Additional lumination is provided by daylighting. Indirect lighting, which is ideal for computer use to minimize glare, is used in office areas. Each workstation has its own task light, giving employees personal control over their environmental lighting- an excellent use of task lighting. Overhead lighting automatically dims when daylight is plentiful. Lighting design combines energy-saving T8 lamps and electronic ballasts for increased resource efficiency. Ambient lighting is well-designed for the space.

Nancy Clanton, PE

SPECIAL CITATION FOR MECHANICAL DESIGN IN LABORATORIES

F.W. Olin Science Center Willamette University Campus
Salem, OR

Architect / Firm
Soderstrom Architects
Portland, OR

Contractor
Pence Kelly
Salem, OR

Engineers
KPFF Consulting Engineers
Portland, OR

Lighting / Energy Consultant
PAE and Bob Salek
Portland, OR

Owner
Willamette University
Portland, OR

Photographer
Loren Nelson
Portland, OR

Laboratories are typically high energy users since safety considerations result in large quantities of ventilated air that usually cannot be recirculated. The engineering objective is to vary the ventilation and space conditioning in response to the laboratory use patterns.

The mechanical engineers for the Science Center have addressed this with a variable air volume supply and exhaust system, controlled by fume hood sensors that determine the quantity of exhaust air in response to the position of the operable sash. Temperature sensors regulate supply and exhaust air volumes to maintain thermal comfort and minimize energy use. High efficiency fan motors and variable speed drives contribute to energy savings. There was a strong sense of owner commitment to a better, more efficient mechanical system. The Director of the Physical Plant contributed $100,000 from his maintenance budget to prevent compromises in the design.

The jury was impressed that this mechanical design was achieved within an overall project that is quite modest for laboratory construction.

Harry T. Gordon, FAIA



The **Architecture + Energy** Steering Committee and the AIA/Portland Chapter extends its thanks and appreciation to Bonneville Power Administration and Portland General Electric for its continued support and sponsorship of this Design Awards Program. For more information, please call AIA/Portland, 503-223-8757.

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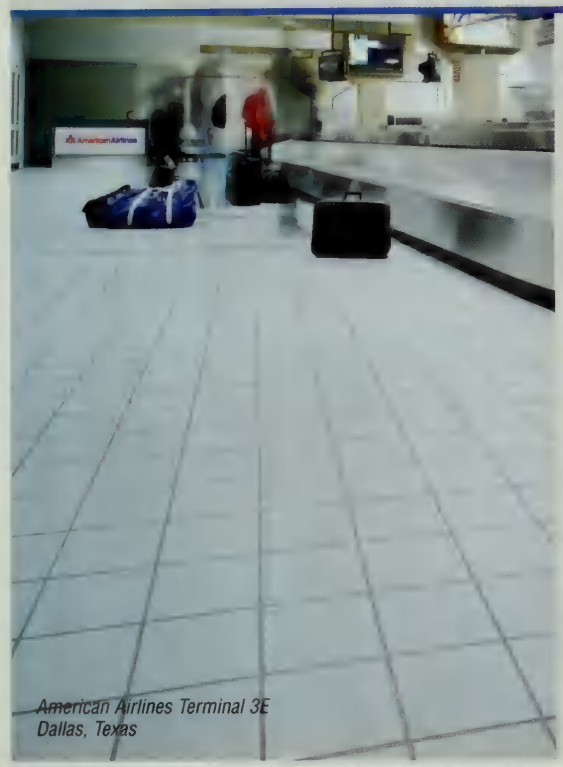
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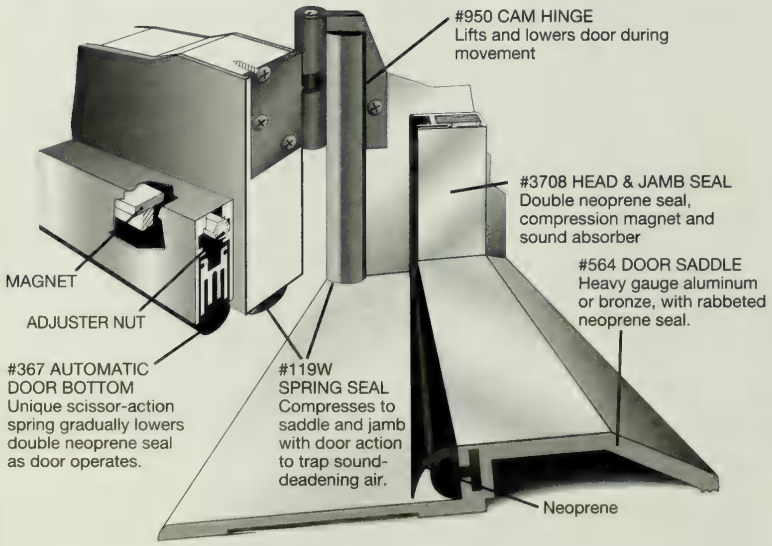
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(continued from page 46) workplace issues and research. Briefings, keynote speeches, and panel discussions will be presented. For information, write NSBP, 655 15th Street, N.W., Washington, D.C. 20005; or call 202/639-4160.

Competitions

Upcoming deadlines for the **1998 AIA Honors and Awards** program are as follows: Honor Awards for Urban Design, entry deadline September 12, submissions due October 10; Fellowship, submissions due October 24; Edward C. Kemper Award and Whitney M. Young Jr., Citation (nomination by national board member required), submissions due October 27; Honorary Fellowships, submissions due November 7; Young Architects Citation (nomination by AIA component required), submissions due November 21; Architecture Firm Award, Henry Bacon Medal for Memorial Architecture, Institute Honors, and Thomas Jefferson Awards for Public Architecture and ACSA/AIA Topaz Medallion for Excellence in Architectural Education, submissions due December 12; and Honorary Memberships (nomination by national board member required), due December 19. For more information, call Robin Lee at the AIA at 202/626-7390.

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Connective Tissues, a national design competition open to architects, designers, and students, involves refining existing connections to the Central Business District of Dallas, Texas. The competition is sponsored by the Dallas AIA Young Architects/Associates Forum, the Central Dallas Association, and the city's Downtown Improvement District. Submissions are due October 6. To receive a program, send $35 by September 19 to YA/AF Design Competition Committee, Dallas AIA, 2811 McKinney Avenue, Suite 20 LB-104, Dallas, Tex. 75204.

The New York State Energy Research and Development Authority is offering **$1 million in awards to cofund research projects** to design, develop, demonstrate, or commercialize technologies that reduce energy consumption in commercial or residential buildings. Proposals are due September 30. For a copy of the Program Opportunity Notice (390-97), contact Gina Wilder at NYSERDA by fax at 518/862-1091 or E-mail at gmw@nyserda.org.

The 14th biennial **design awards program of the Concrete Reinforcing Steel Institute** is open to projects that are predominantly site-cast using conventionally reinforced concrete and built in the U.S., Canada, or Mexico no earlier than January 1, 1995. The deadline for submissions is October 24. For entry information, write CRSI, 933 N. Plum Grove Road, Schaumburg, Ill. 60173; or call 708/517-1200.

New, restored, or rehabilitated theaters of any size, located anywhere, and completed after January 1, 1988, may be entered in the **1998 architecture awards program sponsored by the United States Institute for Theater Technology**. Submissions, due November 10, should be sent to Architecture Awards, USITT, 6443 Ridings Road, Syracuse, N.Y. 13206. For information, call Timothy Hartung, USITT Architecture Commissioner, at 212/807-7171.

Proposals for advanced study in any area of investigation that will contribute to the knowledge, teaching, or practice of architecture may be submitted to the **Brunner Grants program**. Sponsored by the AIA New York Chapter, the program is open to any U.S. citizen engaged in architecture or a related field who has a background more advanced than is implied by five years of architectural training. Proposals must be submitted by November 15. For an application, write AIA New York Chapter, 200 Lexington Avenue, New York, N.Y. 10016; or call 212/683-0023. ■

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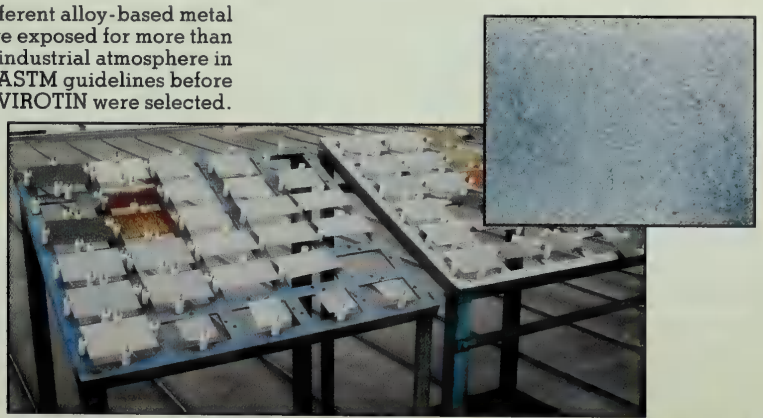
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INSTRUCTIONS

◆ Read the article "Collaboration by Wire" (pages 131–37) using the learning objectives provided to focus your study.

◆ Complete the questions below, then check your answers (top of page 172).

◆ Fill out the self-report form on page 172 and submit it to receive two AIA Learning Units.

—Mark Scher, AIA Director Professional Education Products and Services

Questions

1. What are the administrative implications of design and construction teams collaborating through a network?

2. Summarize the file-sharing issues in working on line.

3. What technical advantages does electronic collaboration appear to have over nonelectronic means?

4. Differentiate plug-ins from browsers.

5. How do intranets, extranets, and the World Wide Web relate to the Internet?

6. What is the working compatibility between the major CADD vendor products?

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The editors of ARCHITECTURAL RECORD announce the 43rd annual RECORD HOUSES awards program. This program is open to any registered architect; work previously published in other national design magazines is disqualified. Of particular interest are projects that incorporate innovative programs, building technologies, and use of materials. There is an entry fee of $50 per submission; please make checks payable to ARCHITECTURAL RECORD.

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ANSWERS

Answers refer to the article "Collaboration by Wire" (pages 131–37). The questions appear on page 170. To receive CES credits, fill in the self-report form below.

1. The number of documents and the frequency of exchange increase with electronic collaboration. As a result, more attention must be paid to record keeping and monitoring. Project work and team members may be geographically separated.

2. Remote file sharing requires that files be in a readable or common format with proper viewing software, accessible and secure to authorized remote users, two-way standards established for dealing with processed or modified files as well as purging or archiving old files. Standards are also needed regarding layering, drawing, and other graphic features.

3.a) Systematic and automated transmitting of updates; **b)** simultaneous multiuser document access; **c)** faster modifications; **d)** though not specifically mentioned in the article, sharing personnel without travel; **e)** expanding service opportunities in technology-related areas such as multimedia and the Internet.

4. Browsers are helper software applications that provide protocols and a uniform user interface to the World Wide Web. Plug-ins are utilities that load or add on to a browser to provide extra capabilities into your browser. They're called plug-ins by Netscape and ActiveX controls by Microsoft.

5. The World Wide Web is a graphics and multimedia component that runs on the Internet. Intranets are in-house corporate networks that are organized and accessed via the same browser software used to access the World Wide Web. Intranets that can be accessed from outside the firm, often through the Internet via the World Wide Web, are called extranets.

6. The four most common file formats are DWG, DXF, and DWF from AutoCAD and SVF from SoftSource. DWF and SVF are 2D formats that are much more compact than DXF or DWG and transfer more quickly on networks. Also, they can accept hyperlinks to each other and to other places in your file system or your clients'. SoftSource has translators that can convert HPGL files into SVF on DOS or Windows systems, and Sun MicroSystems computers. Design collaborators using different CAD packages may be able to communicate via DXF, which is distributed by most CAD vendors.

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☐ "Collaboration by Wire" (pages 131–37)

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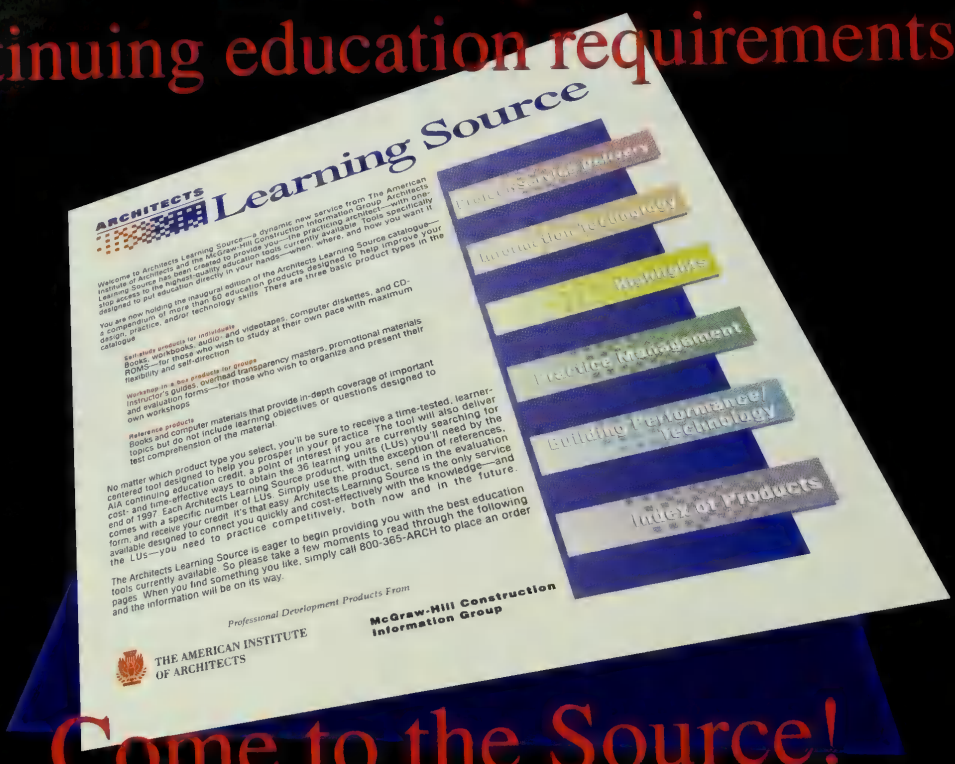
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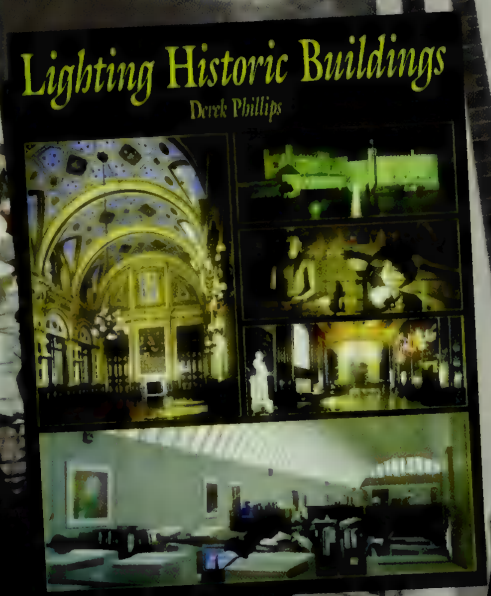
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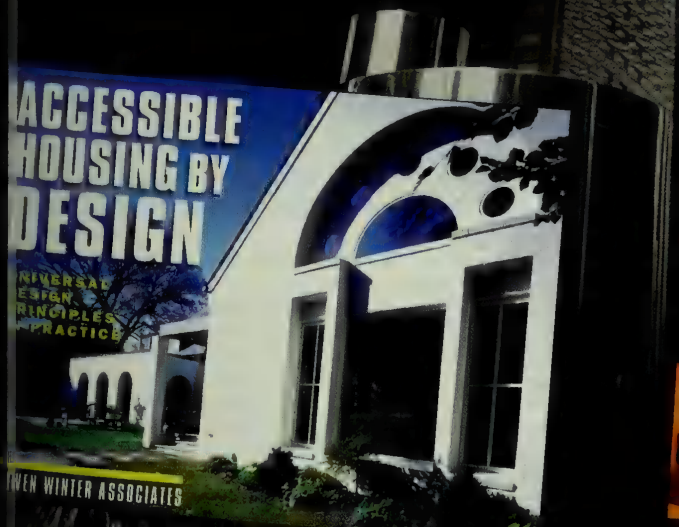
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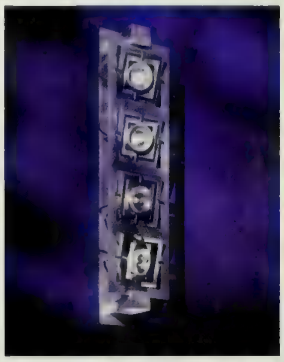
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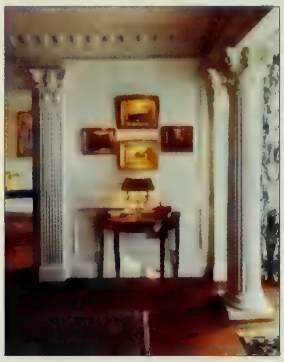


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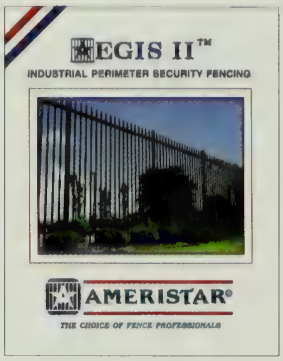


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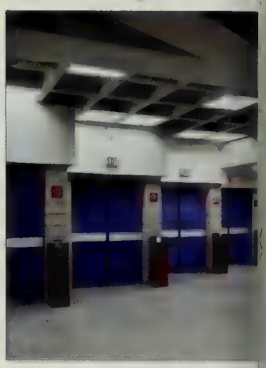


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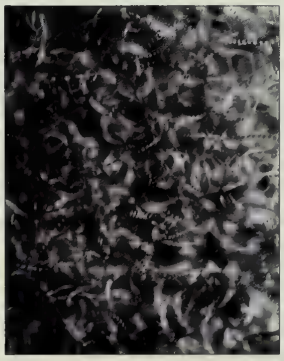


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CIRCLE 158 ON INQUIRY CARD

New Fireplace Tested as a Wall Furnace



Our products have taken direct-vent technology & incorporated it into a new high performance fireplace. Model 6000 Supreme is a high efficiency fireplace (thermal efficiency up to 74%) & has an AFUE (Annual Fuel Utilization Efficiency) rating of 63%. The 6000 Supreme is standard with a variable regulator to adjust the flame & BTU input with the turn of a dial. Heat-N-Glo, 6665 West Hwy 13, Savage, MN 55378, 1-800-669-HEAT.

Heat-N-Glo

CIRCLE 159 ON INQUIRY CARD

Atlas Door™ Small Motor Operator

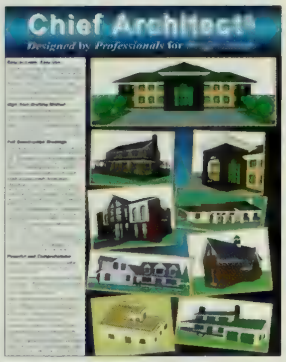


The newest addition to their comm'l motor operator family, the SMO-25 is compact, yet large enough to handle most counter shutter, rolling grille, & small service door applications. UL tested & appr'd, it weighs only 28 lbs. The motor, gearbox, brake & all elec. components & connections are contained within a single NEMA 1 enclosure (9 1/2" x 15" x 5"). The enclosure is designed to fit within the standard 9 1/2" bracket plate.

Clopay Building Products

CIRCLE 160 ON INQUIRY CARD

Advanced Relational Technology, Inc.



Proves that top quality architectural software can be easy to learn. Straight out of the box, Chief simplifies the process of creating full working drawings. Over 300,000 people worldwide prefer ART's architectural software with its full 3-D capabilities. Advanced Relational Technology, Inc. 3731 N. Ramsey Rd, Suite 150, Coeur d'Alene, ID 83814. T: (800) 482-4433, F: (208) 664-1316, artchief@chiefarch.com www.chiefarch.com

ART

CIRCLE 161 ON INQUIRY CARD

Architectural Woodcarvings

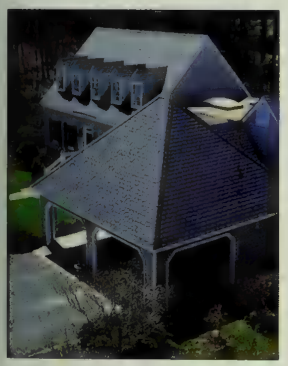


Crafts an extensive array of Architectural elements carved in solid woods. 104 pg. Color Product Catalog, shows a selection of capitals, corbels, moldings, onlays, panels etc. Stocked in Maple and Red Oak. Available for immediate delivery. Bound catalog $20, binder version $30. Visa & MC welcome. Complimentary brochures available. 16506 Avalon Blvd. Carson, Ca. 90746. T: (310) 532-1400, F: (310) 532-2042..

Raymond Enkeboll

CIRCLE 153 ON INQUIRY CARD

Buckingham-Virginia Slate



has been sheltering America for over two centuries. As a roofing material, it is prized for its high mica content, natural cleft and texture, as well as its non-fading and distinctive handmade quality. Because of it's permanence and natural beauty, it was specified by Thomas Jefferson in the 1800's and remains today the roofing choice of eminent architects. Buckningham-Virginia Slate, P.O. Box 8, Arvonia, VA 23004. T: 1-800-235-8921.

Buckingham-VA Slate

CIRCLE 163 ON INQUIRY CARD

Mortar Net Green

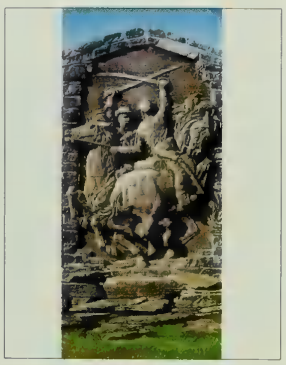


is placed on top of the flashing inside the cavity, where it catches & permanently suspends mortar droppings above the level of the weep holes. Its patented dovetail shape prevents mortar from forming a dam, its shape with its 90% open weave allows water & air to easily move through the net & out the weeps. It's 100% recycled non-degradable polyester & is avail. in a 2-inch width. For a CAD disk, call (800) 664-6638.

Mortar Net

CIRCLE 164 ON INQUIRY CARD

Brickstone Sculpture Signage



For maximum impact and appeal, crown your work with a signature art piece from Brickstone Studios. Applications of brick or cast-stone sculpture are unlimited - exterior and interior murals designed to bring architectural focus to entrances, foyers, facades and imagework. Quality craftsmanship and design are distinguishing services our company guarantees. 800-449-6599.

Brickstone Studios

CIRCLE 165 ON INQUIRY CARD

Ornamental Picket Fence with a Purpose



We have given special attention to each & every component of our fence. Every item is designed for strength, durability and low maintenance. No other company builds a complete fence - rail, rivets, brackets, pickets and posts, that are stronger, more durable, have more security or lower maintenance costs than our fences. Monumental Iron Works, 6500 Eastern Ave., Baltimore, MD 21224. Tel: (410) 633-6500, Fax: (800) 239-2963.

Monumental Iron Works

CIRCLE 166 ON INQUIRY CARD

Jacuzzi Whirpool Bath



Jacuzzi Whirlpool Bath - presents The 1997 International Designer Collection of whirlpool baths, faucetry and The J-Dream™ Family of shower systems. This full-color catalog features beautifully styled products, integrating the most innovative luxury features. For more information please call 1-800-678-6889. Catalog free of charge.

Jacuzzi

CIRCLE 167 ON INQUIRY CARD

Grass Paving at the Orange Bowl



The Orange Bowl Stadium in Miami has an improved parking lot of grass with Grasspave2. 100% grass finished parking bays are compatible with asphalt aisles. 92% root area is best for grass health, maximum porosity and improved water quality. New 100 m2 rolls (1076 sf) make installation fast and easy. Landscape Architects assist with design, call 1-800-233-1510, fax 303-373-1223.

Invisible Structures, Inc.

CIRCLE 168 ON INQUIRY CARD

The Ideal Underlayment for Radiant Floor Heat



For pure comfort and efficiency, nothing maximizes radiant floor heating like Therma-Floor®. It's the specially formulated underlayment that pours 1 1/4" to 1 1/2" thick over hydronic tubes or electric heating cables. Provides UL listed fire resistance. Quieter living, too, due to the mass added to the floor/ceiling system. 1-800-356-7887, fax 612/478-2431 for free Guide.

Maxxon™ Corporation

CIRCLE 169 ON INQUIRY CARD

Reclaimed, Remilled. Remarkable



Vintage Lumber Co., Inc. has been manufacturing exceptional antique T&G plank flooring since 1973. Our extensive selection, consistent quality, on time delivery, and technical expertise is unequaled in the industry. For more info call 800-499-7859 or fax 301-845-6475. P.O. Box 104, Woods-boro, MD 21798.

Vintage Lumber

CIRCLE 170 ON INQUIRY CARD

Acoustical Treatment for Walls & Ceilings

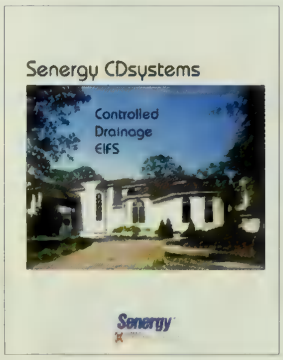


Novawall site-fabricated acoustical treatment system eliminates acoustical hot spots created by curved sufaces. The advanced stretched-fabric system was designed to improve acou-stics in assembly spaces such as auditoriums, churches, conference facilities, & classrooms. Novawall is also used to conceal acoustical diffusors and reflectors to custom "tune" a room for its intended use. Call 800-695-6682.

Novawall Systems, Inc.

CIRCLE 171 ON INQUIRY CARD

Senerflex CDsystem and QR-CDsystem



Senerflex CDsystem and QR-CDsystem are two new exterior insulation and finish systems from the Senergy Division of Harris Specialty Chemicals, Inc. CDsystems provide a sure means for controlling drainage of incidental moisture that may enter the wall. CDsystems offer a wide color selection, variety of textures, interesting aesthetic options, reduced energy costs, and low maintenance.

Senergy

CIRCLE 172 ON INQUIRY CARD

Truebro, Inc. Basin-Guard™ Undersink Enclosure



The Basin-Guard™ undersink enclosure attractively conceals unsightly plumbing and mechanical connections while maintaining knee and foot clearances mandated by A.D.A. It can be installed under kitchen sinks or restroom lavatories where countertops and sidewalks are present. The Basin-Guard™ is offered in 36" and 42" widths in white or beige and is easily trimmed down with common tools.

Truebro, Inc.

CIRCLE 173 ON INQUIRY CARD

Decorative Grilles



Unusual visual effects emerge when our grilles are designed for area effects. Versatility is the theme. R&G offers architects and interior designers many ways to express the changing forms of metal with the integrity of R&G's architectural grilles. Custom or standard finishes are available plus any grille can be made in matching color to blend with your deco. 202 Norman Ave., Bklyn, NY 11222. 800-521-4895, Fax: 718-349-2611.

Register & Grille Mfg., Co

CIRCLE 174 ON INQUIRY CARD

Pipe Clamps

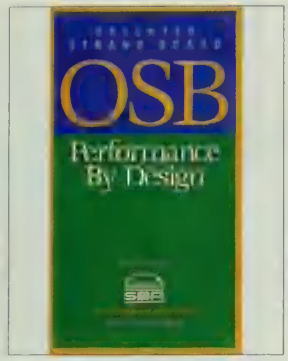


Fully illus. brochure details easy-to-assemble racks, railing, and various pipe structures plus 1,001 other uses made possible with Kee Klamp slip-on pipe fittings. Locked in place with set screws, slip-on fittings come in a variety of shapes that include tees, elbows, crosses, and swivel sockets to accommodate pipe sizes from 1/2 to 2 in. Twenty-four page catalog has sizes, capacities, schematics, suggested layouts, and assembly tips.

Kee Klamp

CIRCLE 175 ON INQUIRY CARD

OSB: Performance by Design



Now is your chance to receive the latest information on Oriented Strand Board (OSB) - the fastest growing structural panel. Call today to get the newly released OSB video for only $11.95! It will provide you with detailed info about the range of uses and flexibility that OSB offers. OSB - engineered to perform. Call the Structural Board Association for more info, or to order your copy of the video 416-730-9090 or fax 416-730-9013.

Structural Board Assoc.

CIRCLE 176 ON INQUIRY CARD

Free Consulting Service Overhead Door Selection

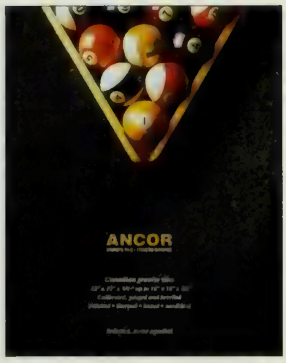


Specification made easy with WayneTec™ Consulting Service providing free door selection for industrial/commercial upward-acting doors, plus AutoCad® design details & CSI-formatted specifications. Just complete simple Spec-A-Door™ forms, then fax them to our toll-free number. Results are faxed back for immediate reference, usually w/in 24 hrs, followed by a hard copy in the mail. Call 800-765-1457.

WayneTec Service

CIRCLE 177 ON INQUIRY CARD

Ancor Granite Tile

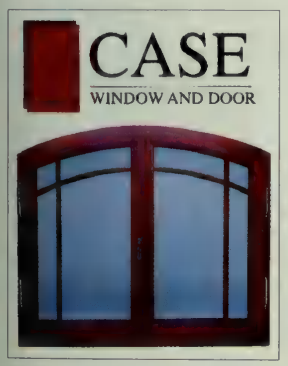


Ancor produces over fifty No. American and Imported granites in a full range of colors and finishes for residential, commercial and institutional use. Standard format is 12 x 12 x 3/8"; other sizes up to 18 x 18 x 1/2" available. Honed finish tile is particularly suitable for high traffic commercial areas, 435 Port Royal West, Montreal, Quebec, H3L2C3, Canada. Ph# (514) 385-9366, Fax# (514) 382-3533.

Ancor Granite

CIRCLE 178 ON INQUIRY CARD

Case Window and Door



At Case, we combine American craftsmanship with German engineering to produce windows and doors, window walls and rolling glass walls, for luxury residential and commercial projects. A wide selection of wood species and metal cladding make possible countless interior and exterior finishes. Superior hardware systems and multiple glazing options provide security, acoustical control, and protection from the elements.

Case Window and Door

CIRCLE 194 ON INQUIRY CARD

NCA's Universal Design '97



The National Center on Accessibility will host Universal Design '97: Methods to Include the Widest Spectrum of Users, People with Disabilities and Older Adults in Parks, Recreation and Interpretive Environments December 8-12 in New Orleans. See the NCA Homepage or call for training course details: NCA, 5020 State Road 67 North, Martinsville, Indiana 46151. (800) 424-1877 or (765) 349-9240; www.indiana.edu/~nca

NCA

CIRCLE 179 ON INQUIRY CARD

Duraflake FR fire-rated particleboard

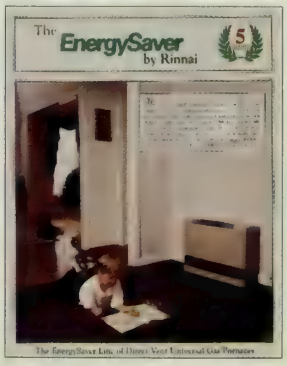


Duraflake FR provides Class A fire protection in wall systems, store fixtures, furniture and case goods. It has a UL flame spread rating of 20 and a smoke developed rating of 25. Its smoothness, machinability and uniformity make it an ideal substrate. It even resists warping and won't leach chemicals. Call (541) 928-3341. Sweet's Catalog 06300/WIL

Duraflake

CIRCLE 180 ON INQUIRY CARD

Universal Gas Furnace



Rinnai's EnergySaver direct-vent gas-fired univ. furnace combines contemp. styling w/ exceptional energy efficiency. Features: cool-to-the-touch cabinetry, quiet twin fans, electronic ignition, no open flame, & humidifier. Energy Saver models 431,556 (shown) & 1001 heat areas up from 1100 to 1700 sq. ft. w/ Natural or LP gas. These Rinnai furnaces also carry the industry leading 5 yr. ltd. warranty. (800) 621-9419.

Rinnai America

CIRCLE 181 ON INQUIRY CARD

Columns & Balustrades



Melton Classics' "MarbleTex™" lifetime-warrantied synthetic stone columns offer the appearance of stone at a reduced cost. Available in 6 in. to 24 in. diameters, with heights up to 24 ft., MarbleTex™ columns require no painting. Other quality products include: wood columns, fiberglass columns, poly/marble columns and synthetic stone balustrades. For a free brochure call 800-963-3060.

Melton Classics, Inc.

CIRCLE 182 ON INQUIRY CARD

Low Voltage Accent Lighting



Tortran, Inc. presents the EXO-TRACK™ low voltage halogen lighting system. Straight, rolled into circles, or shaped into undulating forms, the Exotrack provides accent and illumination for miniature chandeliers, exciting free-form sculptures, and can even be suspended in space. For more information call (203) 367-5188.

Tortran, Inc.

CIRCLE 183 ON INQUIRY CARD

Fire Retardants and Preservatives

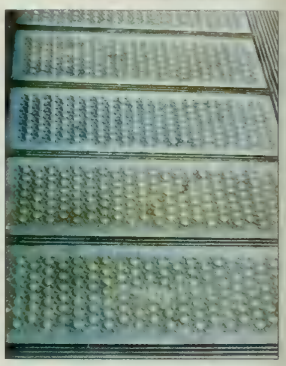


New 12-page Sweet's catalog features Pyro-Guard® interior type fire retardant lumber & plywood for roof systems & other interior structural uses; Exterior Fire-X® FRT lumber & plywood for decks, balconies, siding & other exterior uses; & CCA/KDAT preservative treated lumber & plywood that's kiln dried after treatment. From Hoover, the USA's largest producer of fire retardant treated wood.

Hoover, Inc.

CIRCLE 184 ON INQUIRY CARD

Glass Bullet & Cast Iron Panel System

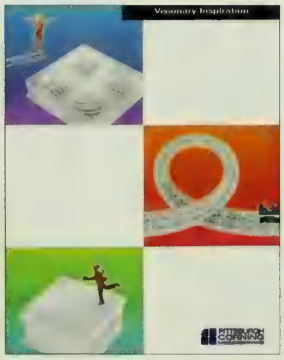


81R Glass Bullet & Cast Iron Panel System for Historic Restoration are suitable for a variety of restoration projects. 1 1/2" solid glass bullets set in cast iron panels are avail. in std. sizes or can be prefab'd to specific site conditions. 81R Panel System is recognized by The NYC Historic Preservation Cmttee as a suitable replacement for cast iron vaultlights or 81R can be designed as sidewalks, stair treads & landings and flooring applications.

Circle Redmont, Inc.

CIRCLE 185 ON INQUIRY CARD

Pittsburgh Corning Glass Block



Inspired designs become reality with the new Premiere Series Glass Block from Pittsburgh Corning. Design curved walls, create a ripple effect or achieve complete privacy with our newest glass block designs. Shed new light on your most visionary inspirations with Pittsburgh Corning Glass Block. For a free brochure, call 1-800-992-5769.

Pittsburgh Corning

CIRCLE 186 ON INQUIRY CARD

Carriage House Shangle™



Features two full-size base shingles, 8-inch exposure and 4-layer coverage when applied. Unique chamfered cut for scalloped appearance. Lifetime limited, transferable warranty.

CertainTeed

CIRCLE 187 ON INQUIRY CARD

Decorative, Thin-Film Intumescent Fireproofing

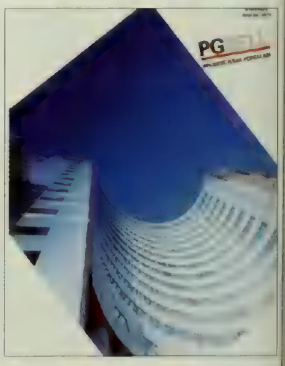


Certified for beams & columns for ratings up to 2 hrs.! A/D Firefilm permits the designer to use the appearance of exposed steel with the steel fully protected from fire. Applied as a thin-film coating 0.4 to 3 mm (0.02 to 0.12 in.) thick. During a fire it expands to form a meringue -like layer up to 100 mm thick. The topcoat is avail. in a wide choice of colours. 416-292-2361. 1-800-263-4087

A/D Fire Protection

CIRCLE 188 ON INQUIRY CARD

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Competitive pricing is only one benefit of cladding with porcelain enamel. Complete color and gloss retention contribute to the unsurpassed longevity that porcelain provides. With the ability to hold the tightest curves, complex forms are only limited by your imagination. Call Jennifer for your free CAD details on disk. PG Bell Architectural Porcelain 800-663-8543.

PG Bell

CIRCLE 189 ON INQUIRY CARD

Fence Systems



This new aesthetically appealing Euro-design fence system combines see-thru good looks with strength and durability of 6-gauge galvanized steel mesh. Powder-coated in a large variety of colors to suit any design & enhance the appearance & security of any property it surrounds, this fence system is virtually unclimbable, rugged maintenance-free and easy to install. 1-800-836-6342. www.maniacom.com/omega.html

Omega Fence Systems

CIRCLE 190 ON INQUIRY CARD

Pan-Tech



Manufactures composite building panels in a variety of different face materials and finishes. Aluminum: two, three and four coat Kymar finishes, anodized, colour & brushed. Stainless Steel: 304, 316 grades, #4, #8 finish, coloured stainless and patterned. Zinc: Rheinzink preweathered. Porcelain: for Span-drel applications. Copper: pre-patinated.

Pan-Tech, Inc.

CIRCLE 191 ON INQUIRY CARD

Hadrian's Toilet Partitions Have Ground Corners!



They're hygienic, better looking, stronger and just one of Hadrian's unsurpassed Painted Steel and Stainless Steel toilet partition quality features. Doors and Panels are honeycomb filled for impact-resistance. Painted units are of galvanneal steel and are polymer powder coated for super corrosion deterrence. Fast shipping schedules, super service and more. Call 216-974-7120. Fax 800-536-1469.

Hadrian, Inc.

CIRCLE 192 ON INQUIRY CARD

NEW—26 Gauge PAC-CLAD Steel



Announcing the addition of 26 gauge PAC-CLAD Steel to the line of architectural metal roofing products. The finish is a full Kynar 500/Hylar 5000 low gloss/low sheen formulation to minimize the appearance of oil-canning. It is for residential and light commercial applications where finish quality should not be compromised. For complete information, please call 1-800-323-1960 or visit the Petersen Aluminum web site @ http://www.pac-clad.com

Petersen Aluminum

CIRCLE 193 ON INQUIRY CARD

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ARCHITECT I
Sought by professional architectural services firm in Denver, CO to participate in complex architectural projects involving health care facilities including conceptual design, schematic design, design development, construction documentation, & construction administration. Apply metric construction practices in appropriate projects. Supervise work of 1 to 2 draftsmen. Use AUTOCAD & AUTO-ARCHITECT software programs. Requires Bachelor of Architecture; 3 yrs experience in architectural design, including 1 yr experience designing health care facilities; working knowledge of metric construction practices. $16.50/hr; 8AM-5PM, M-F. (2 openings) Respond by resume to James Shimada, Colorado Department of Labor & Employment, Tower II, #400, 1515 Arapahoe St., Denver, CO 80202 and refer to Job Order No. CO4538700.

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Utah's largest architectural firm seeks licensed architects. This fast-paced firm is looking to add highly motivated professionals to our successful team of employees. Five years experience preferred. Strong AutoCAD, technical, managerial and creative abilities required. Salary negotiable and commensurate with experience. Please send resume to: MHTN Architects, #2 Exchange Place, SLC, Utah 84111 or e-mail to greg@MHTN.com

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Experienced registered senior architect for a 12 person Pasco County, Florida A/E firm with a varied practice including educational facilities, corporate, municipal, housing and retail projects. Responsibilities will include coordinating and supervising the production of several projects at a time, from schematics to construction. Strong verbal, graphic and presentation skills are required. Reports directly to firm's principal. At least 12-15 years working as a project architect on comparable project types is imperative. Ideal candidate will be hands-on and able to produce their own technically correct working drawings as well as supervise other employees in the development of construction documents. Excellent benefits package and growth potential. Send resume ASAP to Richard M. Bekesh, AIA, President, Spring Engineering, Inc., 3014 U.S. Hwy. 19, Holiday, FL 34691 - Fax 813/942-4174.

INTERN'L INTERNET MKTNG & DESIGN MGR
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ARCHITECT
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THE FUTURE The virtual visit saves time and money—but it won't make the airlines happy.

BY JOAN BLATTERMAN

According to the August 1 *Wall Street Journal*, corporate America now pays $165 billion a year for business travel, almost double the spending level of 10 years ago. This massive expense comes directly off the bottom line, and attempts to cut these costs are getting serious.

Many of those billions are spent on short, one- or two-hour face-to-face meetings. For example, flying three managers from Houston to Hong Kong for a 90-minute project session with China-based associates can easily cost $12,000 in airfare, meals, and lodging; four days of long-distance travel; and loss of time at work. Using simultaneous video transmission, this trans-Pacific meeting would take the same hour and a half but would cost well under $1,000. And if a new teleconferencing company has its way, that Hong Kong–Texas business meeting could include a shared banquet as well.

Among the firms seeking a portion of corporate alternative-meeting dollars, such as teleconferencing consultants, document-sharing-equipment vendors, and compression/decompression signal-device makers, TeleSuite Corporation thinks it has the better mousetrap: virtual conferencing.

Run by a team with substantial background in the hotel industry, TeleSuite aims to create an environment conducive to professional communication. Working with the data-collaboration and network-management capabilities of IBM Global Services, the new firm constructs and supports virtual-meeting facilities. Incorporating a proprietary video-mirror concept, these spaces don't have the intimidating "you're on candid camera" ambience of other teleconferencing setups. As many as eight people can meet virtually face-to-face, with no distracting cameras or microphones in sight. Meetings take place in a snug—but not cramped—space that looks like a particularly well-lit seminar room.

The core of the technology is the video mirror, a large rear-projection screen system capable of displaying sharp, realistic images at an ultra-high resolution of 350,000 pixels. Transmission is at 30 frames per second, so that action in each suite is seen as it happens, across the country or across the ocean, without hesitation or time delay. Interior decor, including custom sound-control panels that insure record-studio acoustics, looks the same from suite to suite.

Meeting participants enter a conference room about 17 ft square, furnished with softly illuminated backlit screens. Low-voltage halogen spots provide accent lighting. Conferees take their places at a mahogany conference table about 5 1/2 ft deep, set with a bouquet of flowers. As the meeting begins, participants in the other TeleSuite occupy identical chairs and look back across the other half of the "same" table. Seen in the background are similar arch-top wall panels. The screen gives users the perception of being together in a single room, and people can make eye contact in the same way they would in a face-to-face meeting. (However, they can't shake hands.) TeleSuite has installed a hospitality oriented version of its virtual conference in several Hilton hotels, including New York Waldorf Astoria. Patrons make a reservation for time at any two sites—Los Angeles and Chicago, for example—and the hotels can serve a meal simultaneously. (An hour of conference time is $199 per site; the power breakfast is extra.)



In the TeleSuite, miniature cameras are hidden in the vase of flowers.

TeleSuites can also be specified for public sites such as airports and shopping malls, or as part of a corporation's own communications network. Suites are operated remotely, without on-site employees and no orientation is needed to start the meeting. A phoned-in reservation sets up time at both suites; all the participants have to do is show up and sit down. Additional conferencing options include monitors for collaborative computing and interactive easels. TeleSuite of Engelwood, Ohio, offers a free short video that demonstrates the virtual visit. Call 937/836-9995 for information. ■

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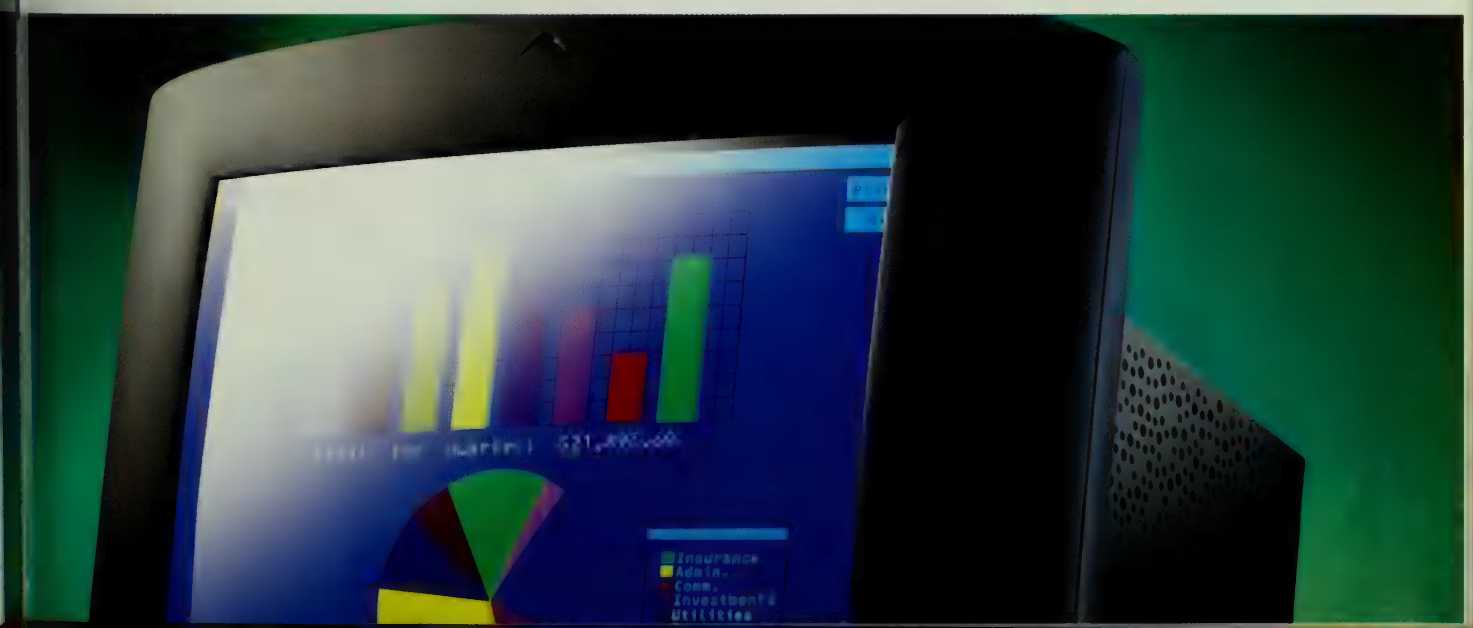
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Continuing Education: *The AIA/ARCHITECTURAL RECORD continuing education opportunity this month is "The Maturing of Metal Framing" (pages 133–36). The self-report form appears on page 162.*

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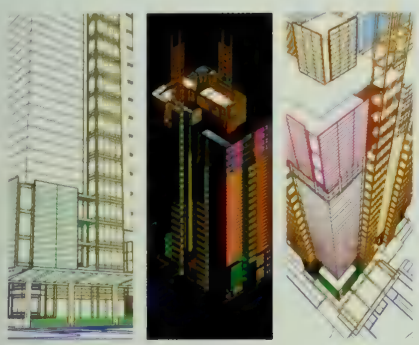
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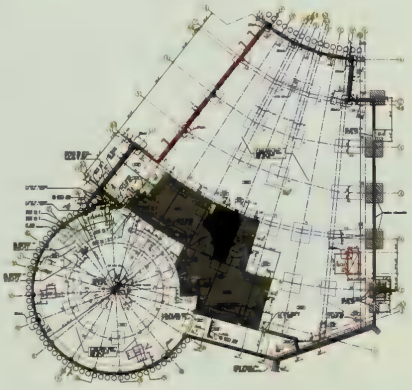


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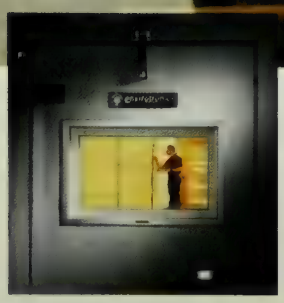
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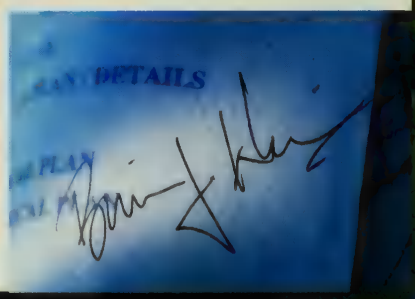
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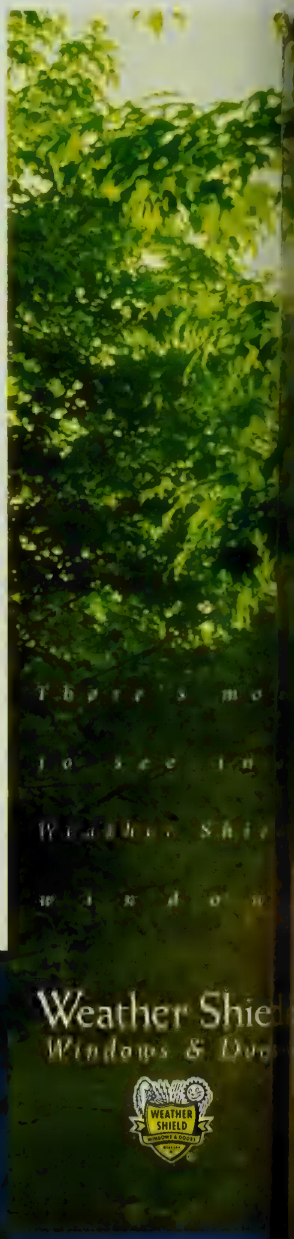
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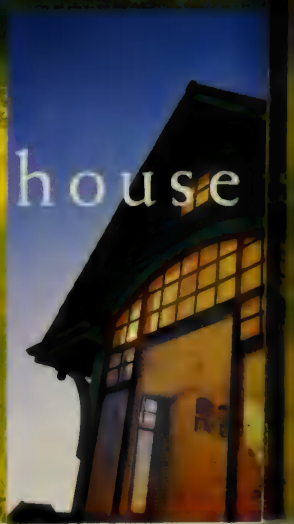
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President, Jordan Mozer & Associates, Ltd., Chicago, Illinois, an architecture firm

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A. Epstein & Sons International
Construction Manager: *Mc3D Inc.*
Roofing Installers: *James Mansfield & Sons Roofing Co.*
Profile: *High Snap-On Standing Seam*
Custom Color: *McCormick Gray*

PAC-CLAD High Snap-On Standing Seam Panels are featured prominently in the recently completed Grand Concourse of Chicago's McCormick Place. The barrel-vaulted roof serves to draw attention to the main entrance of this huge convention center.

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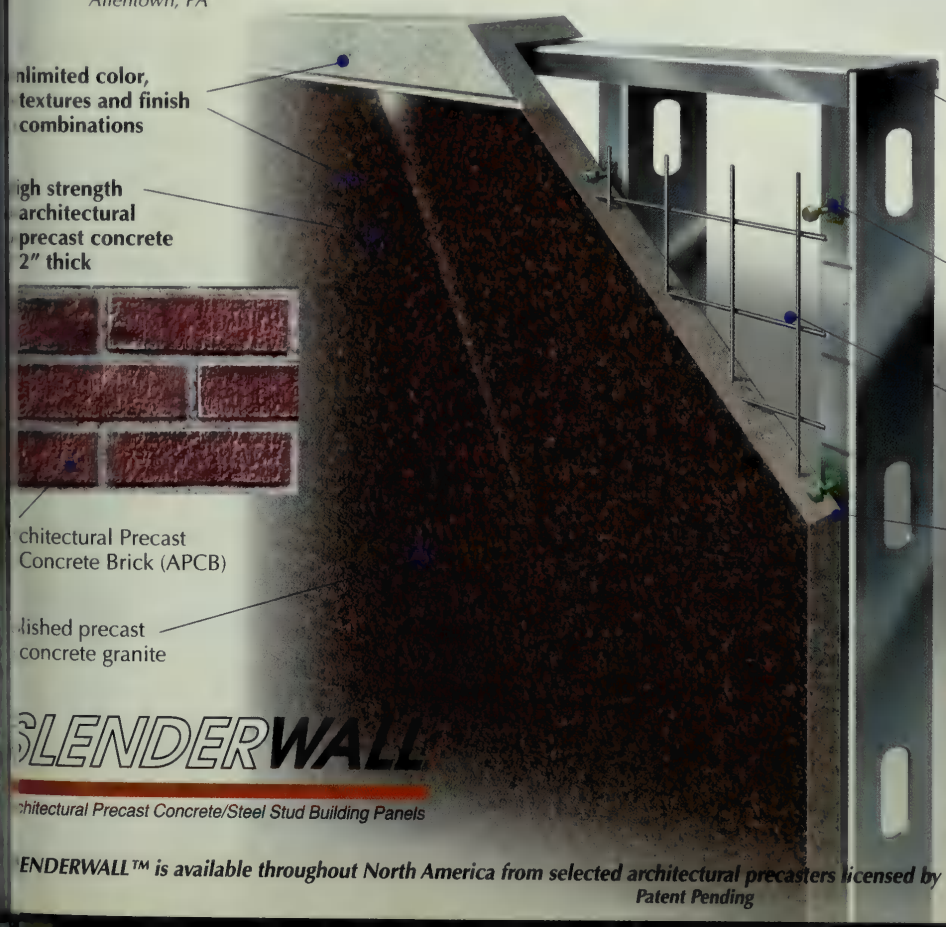
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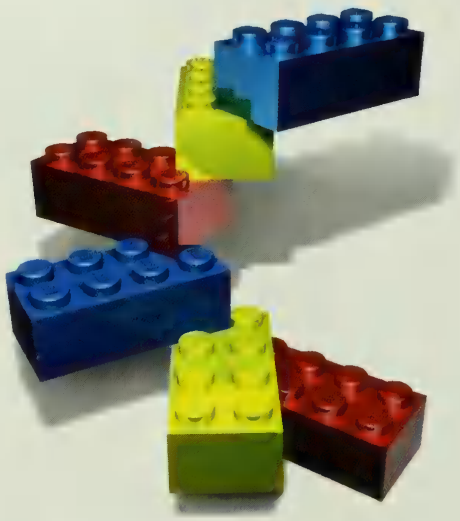
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CIRCLE 10 ON INQUIRY CARD



EDITORIAL

Architectural Myopia

BY ROBERT A. IVY, FAIA

Must we reject what we have embraced? Paul Rudolph's death last month raises that question and provokes speculation on the relationship of our architectural culture to its near past. Though he continued to practice until limited by illness, Rudolph, an architect who had been central to architectural dialogue since his student days, faded away, sharply kicked from stage center and virtually unknown to the younger generation.

In his prime, Rudolph was regarded as a great architect and a great teacher. How many young architects fought their way to New York, hoping for a spot in his office? His students at Yale include a talented, eclectic generation, ranging from Robert A.M. Stern to Norman Foster. Rudolph's massive buildings, with their interlocked, smoky spaces, continue to provoke both admiration and fierce controversy. Yale's Art and Architecture building sums up the firestorm of talent, power, and emotion that surrounds his career.

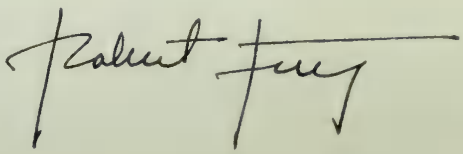
Granted, our shared interests evolve, sometimes precipitously, but in our effective ostracism of mentors like Rudolph, we limit our field of vision. It is as if we were suffering from the inability to see what has just gone before—a kind of collective myopia.

Pop psychology could produce myriad reasons for this blurred vision: the need for growth demands rejection of an older generation; the human dynamic demands rest and refocusing (myopia literally means "shut eye"). Tastes change, styles shift in all design, whether in skirts or cars or the shape of concrete walls. The phenomenon is encouraged by our insatiable appetite for the new, abetted by media as superficial and frenetic as klieg lights. As soon as the new emerges, the nearly new appears slightly soiled, then gray, then gone.

Clarity comes with some kind of separation, most often the distance of time. Sometimes physical distance offers perspective; in Rudolph's case, the gap was death. A few architects like Wright outlive our fickleness, whereas Louis Sullivan, Wright's own lieber meister, spent his last years consigned to obscure projects in small midwestern towns. Today, both Wright and Sullivan enjoy canonization. The same lesson applies to popular building. Who doesn't treasure the exuberance of Queen Anne houses, which were reviled by a generation of early modernists? It took half a century to recognize their worth and to salvage them from years of neglect.

The rub comes when we try to focus on the current moment. What buildings from the near past, overlooked or undervalued, are worth a sharper gaze? One of Rudolph's students, Robert Stern, thinks that we have undervalued the parade of skyscrapers along Park Avenue. Not every building or every architectural movement merits praise and consideration. Of more recent work, it seems difficult to value most postmodern architecture today, since it remains poised directly before us, blurred by contemporary rhetoric and a more astringent aesthetic.

It may be that architectural myopia is natural and necessary, not so much a disease as a condition. Buildings, after all, remain constant; it is our ideas about them that change. However, there is so much that we, a younger crowd, could learn from older, living architects, those individuals who created the near past. What other persons of genius remain among us with lessons for today? In the coming months, ARCHITECTURAL RECORD *will attempt to redress our nearsightedness, occasionally seeking out masterful architects and architecture, highlighting not only what is newest among us, but, like the work of Paul Rudolph, what is best.*



OUR WINDOWS ARE MADE FROM WOOD. AND SOMETIMES



When architect Bill Becker redesigned this summer retreat in the Berkshire Mountains, the home's setting provided all the inspiration he needed. He used native wood and stone extensively. Fashioned the front porch supports from 8" logs. And for the north end of the home, which looks out over a lake to the mountains beyond, he created a wall of glass using windows and doors with custom-designed muntins that echo the shape of the surrounding pines. Who did he contact to supply these uniqu products? Bill Becker's search began and ended with one phone call. To Marvin Windows & Doo

From Bill's drawings, the company produced three large fixed windows and eight doors, thre of which open onto the deck. Marvin's ability to create these custom products inspired similar design elements in the home's interior, including a rustic stairway made from pine logs and branches. Still, as unique as they are, these aren't the only Marvin windows that figured prominently in the design.



To double the home's square footage without violating local zoning codes or overwhelming the surrounding cottages, Bill skewed the second level off the long axis of the first floor by seven degrees to create the illusion of a dormer. Marvin windows which step down in height help further the illusion. And to optimize their energy efficiency, these

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CIRCLE 11 ON INQUIRY CARD

LETTERS

Teamwork in Bosnia

In reference to the brief news item that you published in your August 1997 issue on efforts to rebuild the Bosnian city of Mostar [page 32], Dr. Amir Pasic not only conceived of Mostar 2004 but has been the driving force behind it; he should be recognized as the person who has tirelessly and creatively administered the project. Through his efforts, funds have been raised to allow students and faculty like Judith Bing of Drexel University, Jerrilynn Dodds and Lance Brown of City College of New York, Noman Ahmed of Dawood College, Nedzad Kurto of Sarajevo University, Isik Aydemir of Yildiz University, Zeynep Ahunbay of Istanbul Technical University, Alan Plattus and Ivo Banac of Yale University, Richard Plunz and John Stubbs of Columbia University, and myself to contribute to the effort in meaningful ways. The continuing contributions of Jonathan Calame, Esther Charlesworth, Sebnem Onal, and Hugh Patterson as dedicated graduate students must also be recognized.

—J. Brooke Harrington, Associate Professor of Architecture
Temple University
Philadelphia, Pa.

The future is now

I have been known as a "lurker" and not a participant in the electronic revolution. Having read your August editorial, the inspiration to do something has struck! Thank you for the insight into the next generation of problems associated with the practice of architecture. I have been drawing for over 40 years—from very primitive to the latest state-of-the-art software and hardware. As a result of the computer improvements, real design can be accomplished now. I am not touting one particular system but supporting your contention that we should "get with it." The future has been available for several years and is just now able to take advantage of available hardware. So let the profession get off their collective behinds and work toward the future!

—Lewis Bishop, AIA
Palm Desert, Calif.

Geography lesson

I think we need to listen to geographers as well as landscape architects. In your otherwise fine article "Listening to Landscape Architects" [August 1997, pages 44–49], the Iowa Center for the Arts is identified as being at the University of Iowa in Ames. The University of Iowa is actually located in Iowa City.

—David Arbogast
Iowa City, Iowa

Credit for the RCA Building

Charles Linn's tribute to Abe Feder [August 1997, page 103] incorrectly credits design of the RCA Building at Rockefeller Center to Raymond Hood's understudy, Wallace Harrison.

—Jeremy Scott Wood, AIA
Weston, Mass.

Charles Linn responds: *While Harrison had worked for Hood, by the time Rockefeller Center was being designed and constructed, he had his own firm, and Hood was a consultant. The* MacMillan Encyclopedia of Architects *attributes the design to Harrison, although it states that Hood's "guiding hand is present throughout."*

Affordable, not low-budget

I enjoyed the Buildings Types Study on affordable housing in the July issue [pages 106–19]. The focus on how the complexes were integrated into their neighborhoods was an interesting angle. Although the projects were for the low-income market, the construction costs were high. I applaud the ability to do high-quality projects on big budgets; those in your issue ranged from $66 to more than $100 per square foot. Funds for low-income housing are, however, extremely scarce and shrinking. Those of us who are active in the low-income housing field must deal with budgets of $45 to $50 per square foot on a day-to-day basis. It would have been nice to see some projects that excelled on tight construction budgets.

—Ed Hord, FAIA
Hord Coplan Macht
Baltimore, Md.

Practice makes perfect

Congratulations to Margaret McCurry for her well-written letter regarding Robert Clough's stance on architectural licensure [June 1997, page 18]. I have been a licensed architect for 30 years and can look back and say that the only academic subjects I needed to pass the licensing exam were architectural history and the theory of structural engineering. It was my nine-year apprenticeship that prepared me for the exam. Unfortunately, NCARB and NAAB have seen fit to limit the "paths" to obtaining a license, without first curing the ills of our architectural curriculum. I agree with McCurry that the A.R.E. should be open to all "qualified candidates," regardless of "educational pedigree."

—Steve L. Wintner, AIA
Management Consulting Services
The Woodlands, Tex.

Competition-killer initiative

Someone needs to educate the people of California regarding their state's competition-killer initiative [July 1997, page 16]. Californians would be better served if they put all public projects out to RFP. If this were the case, California taxpayers would not have to support a bunch of architects sitting around doing nothing in between projects. Hiring competent, practicing professionals would result in better quality buildings and greater value for the money.

—Keith E. Deutscher, AIA
Reno, Nev.

Sacred or sacrilegious?

Based on your lengthy coverage of Steven Holl's Chapel of St. Ignatius [July 1997, pages 40–53], today architecture must reflect society's angst. "A stone containing seven bottles of light," as Holl described his expressive vision for this chapel, will burden the students of Seattle University for many years to come.

Holl has created a beautiful work of artistic and poetic expression, but he has failed, I believe, to provide the other two requirements for a work of architecture: firmness and commodity. The critique of this building relies on a serious misunderstanding of the value of originality. A chapel must not only provide a "sacred space" as defined by the architect and committee, but a "sacred space" as understood by the body of the Church.

Any quiet place can serve an individual in certain modes of prayer, particularly with closed eyes. A sacramental liturgy, however, requires accommodation of a group of individuals, so that all participants are encouraged and allowed to be an integral part of the liturgy. After the novelty wears off, will anyone want to use this chapel? I submit that the goals of texture, light, and color, together with the desire for a "multisensory experience," are not enough for a chapel. When combined with arbitrary shapes, "unpredictable ways" of bouncing color, disregard of scale, misuse of art, and a disregard of church tradition, these goals have provided the university not with a chapel but with an experimental theater of the absurd.

—John S. Stroik, AIA
Reston, Va.

I have just looked at the photos of the upsy-downsy chapel by Holl. Painting it Roman ochre to resemble ancient stone churches is about as effective as painting a giraffe gray to resemble an elephant.

—Leon Rosenthal, AIA
Babylon, N.Y.

I think Steven Holl's chapel is an inspiration to architects and students who are interested in real architecture. It is a case where architecture goes beyond the application of steel and stone. It comprises a duality: a spiritual and physical entity that gives it breath as a living *(continued on page 152)*



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CIRCLE 12 ON INQUIRY CARD

SPEAK OUT Standards of care offer architects real-world applications of the AIA Code of Ethics.



EDWARD K. TAKAHASHI, AIA

Edward K. Takahashi, AIA, CCS, is a forensic architect and partner-in-charge of the Forensic Section of the O'Leary Terasawa Partners in Los Angeles. He is also the Ethics Committee Chairman of AIA/Los Angeles.

Frank Bucaro, a teacher on moral theology and ethics, has said, "Values are what you believe; ethics is what you do." Architects need to be aware that there is a code of ethics available to help guide them through the often confusing world of professional conduct.

When the American Institute of Architects adopted a new Code of Ethics and Professional Conduct in 1987, it was framed around three sets of principles: the canons (the broad principles of conduct); ethical standards (goals that members should be reaching in their professional performance and behavior); and mandatory rules of conduct (whose violation is grounds for disciplinary action by the AIA).

There is often confusion about ethical matters, particularly at the level of standards of care, the rules of behavior that are derived from the entire set of ethics and that apply to the daily practice of architecture. Standards of care help determine questions of liability, particularly where reasonable care, skill, competence, and diligence fall below community standards.

Often there is no simple answer in determining a standard of care. In my work as a forensic architect and member of an ethics committee, I have seen architects judged responsible for falling below the standards of care for many reasons, including the following:

1. They did not properly coordinate drawings and specifications in the architectural and engineering disciplines.
2. They improperly designed roofs, balconies, window and door openings, and below-grade waterproofing.
3. They did not prepare specifications tailored for a particular project.
4. They prepared ambiguous documents that caused extra work and/or delays.
5. They accepted improper substitutions.
6. They performed improper contract administration observations.
7. They improperly certified payments for the contractor.

How do standards of care apply to the real world? The following overview of complaints received by the AIA/Los Angeles Ethics Committee relating to standards of care provides some examples:

The architect should have been at the job site more during construction. In agreements between architect and owner, the architect should specify the number of visits or number of hours set aside for periodic observations.

The architect didn't give us what we asked for. If an owner presents the architect with a program and specific requirements, the architect must incorporate them. The architect cannot ignore any portion of the program or the specifics.

The architect was found to be unlicensed. Any person discovered to be practicing architecture without a license must be reported to the state board of architectural examiners. That person is committing fraud by impersonating an architect.

A drafting service prepared plans that were stamped by the architect. Any architect who signs or seals construction documents that were prepared by others without his or her direct knowledge or supervision has violated the state's regulatory rules and an AIA rule of conduct.

An architect did not receive credit on a project. One of the most frequent complaints is failure to acknowledge contributions of colleagues such as designers on the team.

Employees and consulting engineers never received payment from the architect. Lack of compensation is a common problem leading to the filing of an ethics complaint.

An architect was not able to get copies of his or her work. Most architects allow their departing employees to obtain copies of their work, with the departing employee generally bearing the cost of the reproductions. Because of the confidential nature of certain projects, an employee may be asked to sign a confidentiality agreement.

Ethics committees of the AIA are available at all levels to assist architects in interpreting ethical matters. Yet, while colleagues can help architects to clarify the Code of Ethics, in many ways our choices remain personal. As folk singer David Wilcox says: "We answer for the consequences of our choices." ■

Contributions: *If you would like to express your opinion in this column, send submissions by mail (with a disk, if possible) to Speak Out, Architectural Record, 1221 Avenue of the Americas, New York, N.Y. 10020; fax 212/512-4256; or E-mail rivy@mcgraw-hill.com. Essays must not exceed 700 words. The editors reserve the right to edit for space and clarity. Where substantial editing occurs, the author will receive final text approval.*

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CIRCLE 13 ON INQUIRY CARD

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Kenneth Natkin, FAIA, is an attorney and an architect in San Francisco, specializing in mediation of construction disputes. He is chair of the National AIA Risk Management Committee.

Roberta W. Jorgensen, AIA, is president of Robbins Jorgensen Christopher, Architects, with offices in Irvine and San Diego, California. She is also president of the American Institute of Architects, California Council.





I have been working for a client who has become almost impossible to collect from. The situation has become difficult for my practice and is even affecting my credit. Almost $250,000 is involved. Not only do I require the funds for working capital, but the majority of the dollars are owed to other vendors. And despite the terms of my contract, the client, a hospital, never pays interest on its balance due.

The bulk of my practice is wrapped up in this client. I have enjoyed wonderful work with them for five years and have signed a contract for another project. I am hesitant to alienate the client because they continue to give me good business. But I must draw the line somewhere. What advice can you offer?
—Unsigned

Kenneth Natkin, FAIA, responds: As this account receivable gets older and larger, the likelihood increases that the client will decide your fee was too high in the first place and that you were negligent in providing some of these "overpriced" services. A client who is willing to take advantage of you like this is not a client you want to keep. Even at risk of losing the client, you must draw the line.

Go to a knowledgeable lawyer right away. From a legal point of view, there are several possibilities. The most "gentle" is to have the lawyer write a firm letter demanding payment by a certain date. If construction is not yet complete or the requisite time periods have elapsed, the letter might include a copy of a claim of lien or a stop notice, with an indication they will be recorded if payment is not received. If your lien periods are about to expire, record such a claim immediately. Liens are powerful incentives for payment.

I assume the contract you refer to is an AIA B141 1987 agreement. In addition to the interest clause, that agreement has a number of provisions that can be helpful. If construction is not yet completed, nonpayment constitutes a substantial breach of contract entitling you to stop work. The drawings as instruments of service remain provisions of the B141, and the client cannot use those drawings for completion of the project by others. The demand letter might refer to some of these provisions. If you have added an attorney fee provision (not included in the B141) to your agreement, point that out. Your client will be more likely to pay you if they know they will end up paying your legal fees and costs to collect from them.

If the demand letter is ignored, you must be willing to stop work, to enforce your contractual rights, and, if necessary, to pursue arbitration, as required under the B141.

Roberta W. Jorgensen, AIA, responds: Having one client that can make or break your firm is a situation most architects should avoid. In an ever-changing marketplace, a diverse client base will aid in the solvency of a practice in lean times.

Have you exhausted all methods of collection in a manner consistent with business etiquette? Have you billed at each billing interval and followed each billing with a phone call asking if the invoice was complete and formatted to their liking? Have you asked when you can expect payment?

If the problem persists, request a meeting with the client representative, with payment as the only agenda item. Ask that the hospital accounting department be represented in the meeting. Explain that you enjoy your working relationship, but inform them that you and your subconsultants cannot continue your services until a payment schedule has been developed and some payment received. Do not start work on your new contract until you have resolved the existing problem and the client has committed to a payment plan for upcoming services.

You have more at stake than your credit: your reputation is on the line. Your subconsultants are looking to you for payment. You will be hard-pressed to find subconsultants to work on future projects if you can't pay your current group.

You say the client has given you "good business," but I don't believe habitual nonpayment constitutes good business. If you value your practice and are confident in your abilities, surely you can find better business opportunities elsewhere. ■

Questions: *If you have a question about your career, professional ethics, the law, or any other facet of architecture, design, and construction, send submissions by mail to Mentors, Architectural Record, 1221 Avenue of the Americas, New York, N.Y. 10020; by fax to 212/512-4256; or by E-mail to rivy@mcgraw-hill.com. Submissions may be edited for space and clarity.*



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CIRCLE 14 ON INQUIRY CARD

PULSE RECORD readers were asked: Is there a place for high design in affordable housing?

YES: 100%

Yes: Good architecture is a quality-of-life issue. Who's to say that residents of affordable housing should be relegated to a lesser quality in their living environment? Who would choose which residents live in high-design spaces and which live in the undesigned? Everyone is entitled to a well-thought-out, comfortable environment. As illustrated by several successful projects in the U.S., it does not have to be expensive or elaborate, just simple, clean, well proportioned, and easily buildable. As trained, qualified architects, creating such spaces should be our contribution to the betterment of society.
—Lee Bothast, Assoc. AIA
Pasadena, Calif.

Yes: Though residents are the main consideration, high design should be for everyone, including adjacent neighbors. To associate high design with "upscale" would be to brainwash the public into believing that it is accessible only to those in a privileged socioeconomic position. A shelter with basic amenities is all that may be needed for day-to-day existence, but providing a decent home through high design—or just good design—may offer to residents a greater sense of self-worth, self-respect, and human dignity. That in itself would be worth a try.
—Rory R. Villanueva, AIA
Nader Design Group
Fort Worth, Tex.

Yes: As a firm that concentrates on affordable housing for the disabled, we have no doubt that good, quality design is possible in this market. We design independent-living apartment buildings and group homes for the disabled community; we have provided services to nonprofit corporations and service providers throughout Southern California. Most cities not only welcome architecture that is well designed and sensitive to context but provide incentives for it.
—Efrain Olivares, AIA
ArquiTaller Inc.
Glendale, Calif.

Yes: Affordable housing deserves the same level of attention to design received by any other work of architecture. Affordable housing must not be treated like an architectural second-class citizen.
—William Lyons
Oakland, Calif.

Yes: Careful consideration must be given to this question. Looming over the profession is a preconception that high design must carry an astronomical price tag. I believe that nothing could be further from the truth. The question asked by RECORD seems to be whether or not the time should be taken to explore the issues associated with creating space for human habitation. In my mind it is unconscionable to provide affordable housing without considering comfort, habitability, and cost. To create successful affordable housing, the architect must also have an intimate understanding of myriad social issues. If time and effort are expended in an efficient and productive manner, the residents of affordable housing will receive well-designed spaces that are functional, livable, and affordable.
—Mark J. Gettemeyer, Architect
St. Louis, Mo.

This Month's Question

Is $980 a fair price to pay for the computerized Architect Registration Exam?

The cost to take the exam, which is offered by the National Council of Architectural Registration Boards (NCARB), has risen from under $500 in 1996 to $980 this year. In addition to the base cost, other fees can be levied by state and local governments. Higher fees were instituted by NCARB in February 1997, at the same time that the organization introduced a computerized version of the registration exam. Both changes, the computerized exam and the higher fees, have provoked debate within the profession.

Is $980 a fair price to pay for the computerized Architect Registration Exam?
☐ **Yes** ☐ **No**

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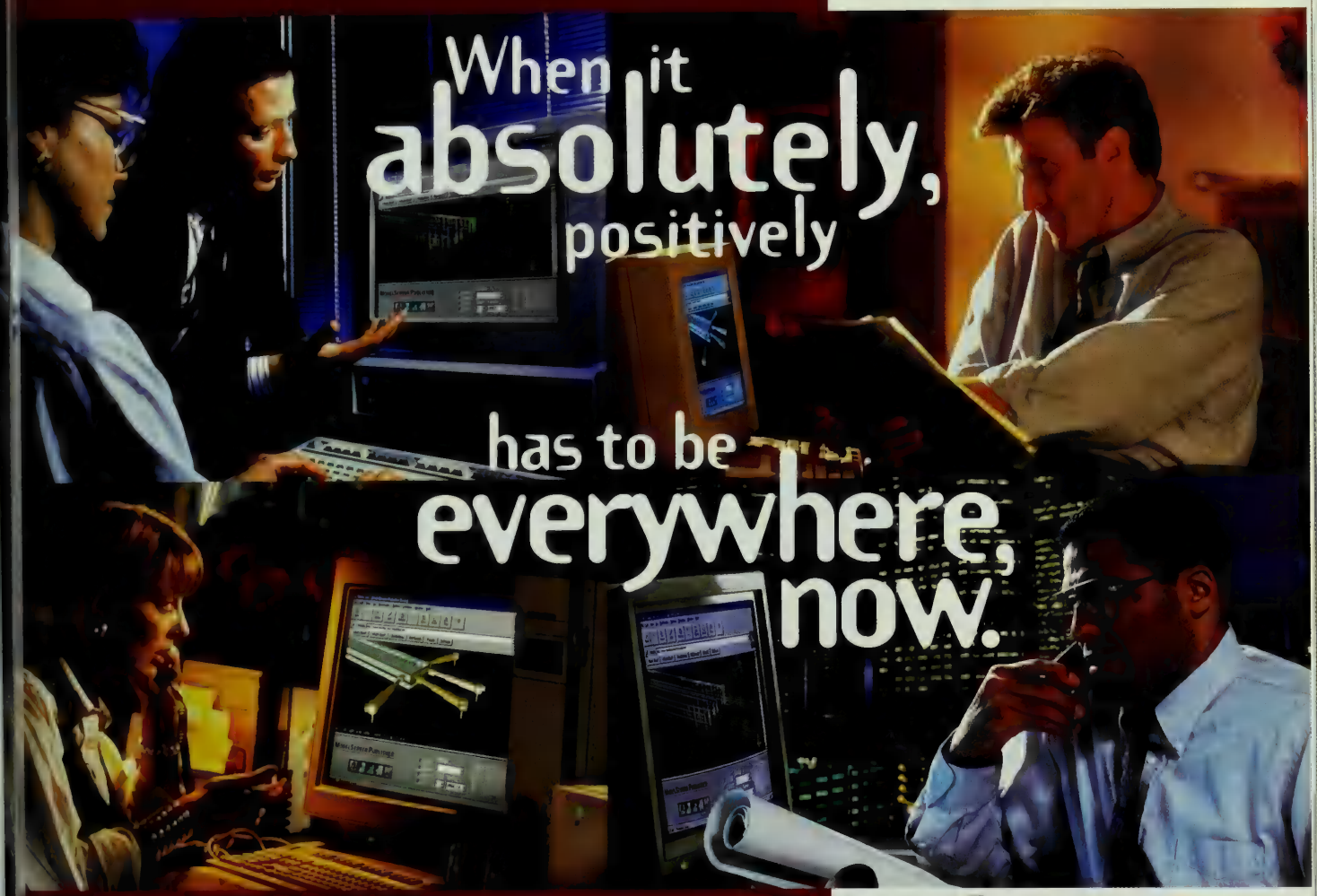
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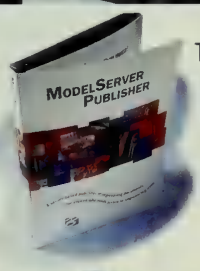
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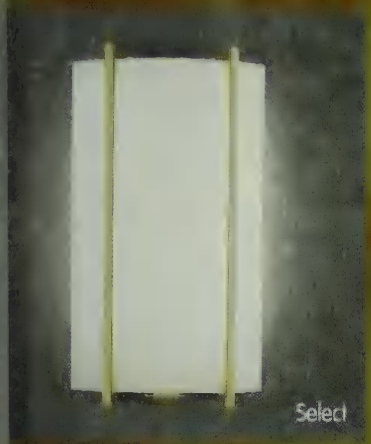
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CIRCLE 17 ON INQUIRY CARD

"When it comes to dimming, I look for products that I know are reliable. That's why I specify Lutron lighting controls."



Barbara Kristiansen, Lighting Designer
Light/Resource & Design, Inc., Rhode Island

Lighting designer Barbara Kristiansen knows the ultimate judge of her work is how well it functions. "I design within architectural and interior spaces to accent, reveal and illuminate. To me, dimming is crucial." Ms. Kristiansen also specifies Lutron lighting controls because of the quality of their technical support. "When you call with a question, you talk to an engineer; someone who can help you with even the toughest problems and give you *accurate* information. That's important to me and the electrical contractor."

Ms. Kristiansen also knows the importance of keeping her clients satisfied, so she appreciates the way "Lutron's aesthetic simplicity complements the surrounding environment" and how Lutron lighting controls save energy, extend lamp life, and add functionality to any location. As she says, "I know I can depend on Lutron. They're a superb company with a reliable, high-quality product. And for support – they really are the best I've found."

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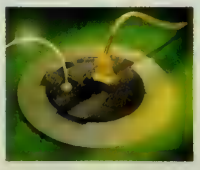
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CIRCLE 20 ON INQUIRY CARD



NO CEASE-FIRE FOR EMBATTLED WORLD WAR II MEMORIAL

We may have won the war, but the World War II Memorial just lost another battle. Set to be built on the Mall in Washington, D.C., the design was returned to the drawing board for major revisions.

In January, architect Friedrich St. Florian won an international competition to design the memorial. His scheme, which must be approved by the Commission of Fine Arts, the National Capitol Planning Commission, and the Secretary of the Interior, has caused many skirmishes since it was unveiled.

The Commission of Fine Arts, historically the artistic arbiter of federal design projects, voted to reject the current plan.

Despite opposition to the proposed site, on the central axis of the Mall between the Lincoln Memorial and the Washington Monument, the commission refused to consider relocation. While the battlefield may remain the same, casualties include extra exhibition space, 50-ft-high earth berms, and a ring of classical columns.

The chairman of the commission, J. Carter Brown, said the columns had a confusing and not readily accessible set of symbolic functions. If they are to celebrate freedom and portray solidarity, unity, and the collective will to victory, it is hard to demand that they also convey the tragedy of young lives cut down in their prime. Both triumph and tragedy are appropriately referenced in such a memorial, but it is unrealistic to expect a single design element to elicit two emotions simultaneously, said Brown.

And if that's not asking a lot of a ring of columns, consider that the proposed structure will be close to the Vietnam War Memorial, which contains not a single classical element yet regularly moves visitors to tears. *Ellen Sands*

ADAPTIVE RE-USE TURNS POWER PLANT INTO HOLLYWOOD-STYLE SOUND STAGE

A former coal-fired power plant on the Halifax waterfront will be transformed into four Hollywood-style sound stages for the city's burgeoning film industry.

The 29,000-sq-ft project occupies part of a Nova Scotia Power electric generating station that has been idle since 1979. Electropolis, a consortium of film production companies, negotiated a 10-year lease with Nova Scotia Power to update the property's use. Electropolis selected Kassner Goodspeed Architects to prepare the drawings. Completion is slated for November.

The building is well suited to sound stage conversion, says partner Dan Goodspeed. The walls are concrete block, which provides good sound insulation. Two of the stages are twice the height of the typical Hollywood stage, allowing for more acute camera angles and shots that convey a sense of distance.

The ambient noise of a fog horn on nearby Georges Island and local truck traffic combined with the building's enormous window openings posed an acoustical challenge. The solution was to fill in the 30-by-12-ft openings with layers of solid concrete block, with air space and acoustic insulation in between.

Cruise ships docking nearby generate a steady flow of tourists. To accommodate them without interfering with production, Kassner Goodspeed created an outdoor observation gallery. *Andrew Safer*



NEW TAX LAW BENEFITS ARCHITECTS **How do you spell relief? Architects will find some in the Taxpayer Relief Act of 1997. Approved August 5, the bill provides incentives that could stimulate school construction. It also offers tax breaks to sole practitioners, to family-owned firms seeking to pass down their companies, and to architects working abroad.**

The law ends the limit on how much tax-exempt debt private colleges and universities may carry. Former restrictions capped tax-exempt borrowing at $150 million per institution. Lessening debt service enables colleges to stretch their capital budgets, potentially leading to increased construction. The legislation aids public schools in poor districts by establishing interest-free "qualified zone academy bonds." Eight hundred million dollars in bonds will be offered over the next two years to schools in designated zones. Funds are earmarked for renovations, equipment, and teacher training.

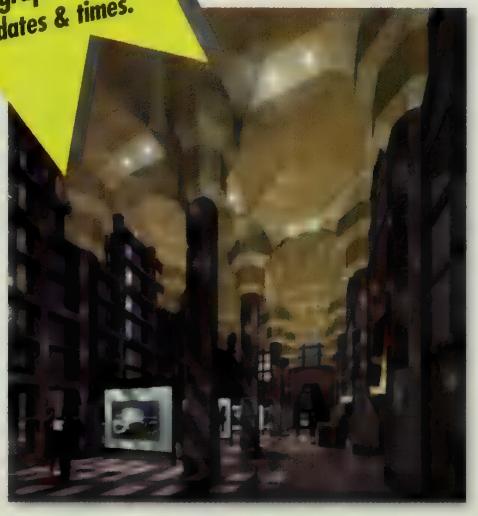
Sole practitioners can increase deductions for health insurance premiums from 40 percent in 1997 to 90 percent in 2006 and 100 percent in 2007. Inheritance taxes ease, excluding estates valued up to $1 million. Formerly the threshold was $600,000. For family-owned firms the exclusion jumps to $1.3 million.

Professionals working abroad can exclude more of their non-U.S. income from federal taxes. The limit increases by $2,000 per year from the current cap of $70,000 until it reaches $80,000. Richard F. Miller of Ellerbe Becket said that increased tax exclusions for overseas workers would influence pricing models and motivate employees to go abroad. "Overall it's not a big change," he said, "but every little bit will help." ***Tom Ichniowski***

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CIRCLE 21 ON INQUIRY CARD

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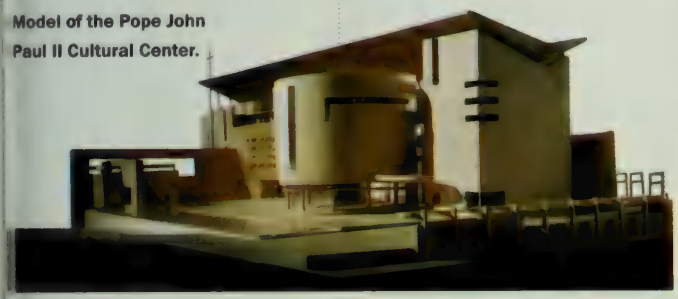
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THE CATHOLIC CHURCH PLANS A HOME FOR ROME IN WASHINGTON, D.C.

Construction begins this month on the Pope John Paul II Cultural Center in Washington, D.C. Part interactive museum and part think tank, the purpose of the $50 million center is to foster a greater understanding of the Catholic faith.

The 100,000-sq-ft limestone-clad building, next door to the Catholic University of America, was designed by Leo A. Daly of Washington. The entrance bridges a pool of water, delivering visitors into "a new realm," said Richard Clarke, director of design. He called the building "a theater for exploring one's relationship to the spirit through the works and papacy of John Paul II."

The center will include conference space, seminar rooms, and a library, plus a museum designed by Edwin Schlossberg. Vatican artworks and other items related to the papacy will be on display. An ancient stone from the tomb of St. Peter, encased in glass, will serve as the building's cornerstone. *Ellen Sands*



Model of the Pope John Paul II Cultural Center.

FLEXIBILITY IS KEY IN DESIGNING FOR ALZHEIMER'S PATIENTS

Understanding the minds of Alzheimer's sufferers is key to designing facilities that maximize independence while minimizing emotional stress. Research convinced the Sienna Architecture Company of Portland, Oregon, that conventional assisted-living facilities were missing the mark.

Patients with Alzheimer's tend to wander and become anxious when confronted with barriers like doors or ends of corridors. Most institutions respond by restricting their movements, but this just increases frustration.

For Regent Assisted Living, Inc. of Portland, a firm that builds and manages these types of facilities, Sienna developed an environment that addresses the problem head on. The plan allows residents to meander along several circular paths without leaving the secured facility. Some walkways wind through outdoor courtyards. All are designed to direct patients past an activity hub where they can stop and mingle until their wanderlust returns.

Architect Gary Reddick called the 25,000-sq-ft, 48-bed residence "a collection of households," each with its own staff. Living units surround common areas that include a dining room and a day room for patients who do not live in.

Color functions to help patients find their way. Each household has its own color scheme and its own art theme. Doors to public areas are brightly painted, while those to restricted areas blend in with adjacent walls. The architects avoided contrasting floor colors, which could be perceived as barriers.

The prototype will be adapted to local sites and residential styles along the West Coast. Post-occupancy evaluation will help Regent and Sienna fine-tune the scheme. *B. J. Novitski*

ARCHITECTURAL PRESS ROUNDUP

ON THE ROAD TO BILBAO

The New York Times, September 14, 1997 Architects and others who make the pilgrimage to Bilbao to see Frank Gehry's Guggenheim Museum will be pleased to know that this otherwise grimy riverfront city has "great bars and an old quarter rewarding to prowl." Gehry's masterpiece-in-the-making has prompted so much interest that the Sunday Travel Section devoted its "What's doing in" column to the Basque town that has long been passed over by tourists in favor of the ocean views of neighboring San Sebastian. But Bilbao's "Dickensian waterfront" is just right for Gehry's "bold and singular creation," says *The Travel Times.*

GONE SWIMMING

The Washington Post, July 23, 1997 The National Park Service is enforcing a no-wading policy at the Franklin D. Roosevelt Memorial after an extreme heat wave prompted visitors to "think of the memorial as their neighborhood pool." In keeping with his experiential approach, designer Lawrence Halprin wanted to encourage visitors to "touch the statues, climb the granite blocks and enjoy the water." But when groups of towel-toting toddlers from local day care centers arrived in swimsuits, the Park Service called a halt. Site manager Eric Broadbent said "dangling is okay, but no more walking in the water."

WELL-MANNERED DESIGN

The New York Times, August 28, 1997 Although he liked the new Arthur Ashe Stadium at the United States Open tennis tournament this summer, veteran sports writer George Vecsey still found the fans to be noisy, pushy, and rude. "A little architecture and landscaping does not noticeably subdue New York manners," the columnist observed.

HOW TO GET A TROPHY HOUSE

Newsday, September 15, 1997 Treating fine homes like fine jewelry, a Chicago-based real estate auction firm, Sheldon Good & Co., will hold its first group auction of "trophy homes." To qualify, houses must be priced at over one million dollars and be in prime locations. More traditional real estate agents question the tactic, noting that "buyers in the high-priced range generally do not make a decision in one sit-down session." But owners see the auction as "the best way of selling quickly while still getting the best price." Bidders must present a certified check of at least $60,000 in order to participate, but only the winning bidder must pay up.

WHOSE BUILDING IS TALLEST?

Engineering News-Record, July 21, 1997 The answer depends on how you define "tall." The Council on Tall Buildings and Urban Habitat has expanded its classification system, adding three new categories. Previously, a building's height was measured from a sidewalk-level entrance to its structural top. By these criteria, Malaysia's Petronas Twin Towers, which are nearing completion in Kuala Lumpur, will dethrone Chicago's Sears Tower as world's tallest. But when measured to highest occupied floor and to top of roof, two added categories, the Sears Tower is back on top. In the final category, height to tip of spiral or antenna, New York's One World Trade Center wins.

Family Portrait



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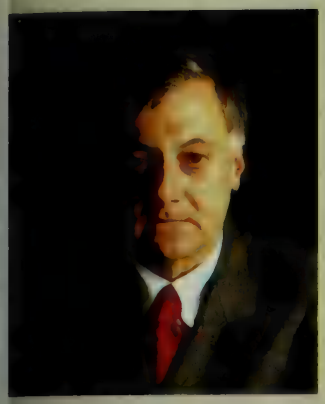
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CIRCLE 22 ON INQUIRY CARD



ALDO ROSSI REMEMBERED Born in Milan on May 3, 1931, Aldo Rossi studied architecture and cinema at the Milan Polytechnic. He edited the Italian magazine *Casabella* in the 1960s and taught architecture in Milan, Venice, Zurich, New York City, and Buenos Aires, cementing his reputation as both scholar and builder. Since 1986 he ran his practice from offices in Milan and Manhattan. Rossi died on September 6 at the age of 66 following injuries sustained in a car crash.

Car accidents figured prominently in Aldo Rossi's life and death. An accident in 1971 influenced his design for the Cemetery of San Cataldo in Modena, Italy. After the accident he recalled lying immobilized in a hospital bed, painfully aware of his bones and their displacement. "I saw the body as a series of fractures to be reassembled," he said, confirming Rossi's theory of architecture as a sum of distinct elements assembled in a rational framework. This became the metaphorical basis of his design for San Cataldo: rows of bone depositories arranged in plan like a skeleton and a mass grave with a chimneylike cap—a shockingly frank assessment of the program as a city for the dead.

Rossi remained faithful to the vocabulary of forms he established at Modena, as if in their recombination he would discover something new. He brought this approach to his architectural practice, composed largely of former students working in offices around the world. For each new commission a different mix of collaborators was assembled. The monumental simplicity of Rossi's designs makes them at once obvious and fresh. But it is their air of familiarity that makes them, like Rossi himself, seem ever-present and eternal.



Part of the San Cataldo Cemetery.

Over the years, I've visited many of his buildings, including celebrated works like the town hall in Borgoricco, Italy, a family tomb outside Milan, and a hotel in Fukuoka, Japan. There is something so direct and powerful yet so serene and elusive about Rossi's buildings that when face to face with one of them, there are no words.

What did Rossi mean to architecture? I think of his own reflections on his buildings, his writings and evocative drawings. "While I may talk about a school, a cemetery, a theater, it is more correct to say that I talk about life, death, imagination," he wrote. And what did architecture mean to Rossi? He answered that question, too, when he accepted the Pritzker Architecture Prize in 1990. Said Rossi, "Searching for truth in my profession, I have ended up loving architecture. Maybe it is a simple but strange satisfaction that makes one love his own profession. So let me call it 'cara architettura,' or in English, 'dear architecture,' or with your permission, 'darling architecture.'" *Karen Stein*



HOW MUCH MODERNISM CAN THE CITY OF MUNICH TAKE?

As big as four football fields and costing 200 million marks, Munich's new modern art museum, the Pinakothek der Moderne, has set this Bavarian city on its ear. Located next to the staid Alte Pinakothek and across from the unpretentious 1981 Neue Pinakothek, the museum is Germany's answer to I. M. Pei's glass pyramid at the Louvre. As the city's largest museum commission in the last 30 years, it put designer Stephan Braunfels in the international spotlight.

The gallery will unite four major state collections under one roof. The collections circle a rotunda that is cut diagonally by a grand staircase, creating a vast, sculptural space. Despite its avant-garde appearance, the design quotes from earlier museums like Friedrich Schinkel's Altes Museum in Berlin and James Stirling's National Gallery in Stuttgart.

Said Braunfels, "I have chosen basic forms, such as the rectangle, cross, and diagonal, and built them into a design that is pure, strict, and contemporary but not trendy. I want people 50 years from now to see the Pinakothek der Moderne as timeless." *Claudine Weber-Hof*

A CHARACTER IN SEARCH OF CRITICISM TURNS TO ARCHITECTURAL RECORD

Readers of the Pulitzer Prize–winning novel *Martin Dressler: The Tale of an American Dreamer*, by Steven Millhauser, are struck by its architectural erudition. The story includes critiques attributed to ARCHITECTURAL RECORD that prompt some soul-searching on the part of the protagonist, a Manhattan developer.

But Millhauser confessed that he never read the magazine. "I came across the name in a publication and thought it sounded solid and plausible," he said.

Millhauser read many period novels and publications to present life and architecture in the early 1900s. A primary resource was the Montgomery Ward catalogue, which he called "an absolute treasure-house of Americana."

In the book Martin Dressler is a successful but lonely developer of the city's early skyscrapers. His first building, the New Dressler, is a 24-story apartment tower with seven underground levels, a zoo, department stores, a roof garden, and a teahouse.

The structure is praised by newspaper critics but panned by RECORD, which calls the New Dressler "a building without definition." A critique of Dressler's second building, the Grand Cosmo, a combination hotel, museum, amusement park, and theater, declares the colossal structure "uninhabitable."

Instead of feeling stung by the criticism, Dressler is transformed by it. Said Millhauser, "He realizes he didn't go far enough in imagining the new structures." *Jessie Mangaliman*



JUST DESSERTS

If only concrete, bricks, and stone would behave the way crystallized sugar, cream, and pastry do. Chef Richard Leach's desserts feature building blocks made of chocolate mousse. Caramelized sugar strands balance like a deconstructed bridge over a river of pear custard and a five-layer rectangular meringue. Clean lines and an authentic use of materials evoke the best in modern form, earning Leach the unofficial title of "The Frank Lloyd Wright of Pastry."

The 31-year-old executive pastry chef for the Park Avenue Café in New York City started his cooking career at age 15 as a line cook in a neighborhood restaurant in his native Long Island. He trained at the Culinary Institute of America and worked at Brooklyn's acclaimed River Café.

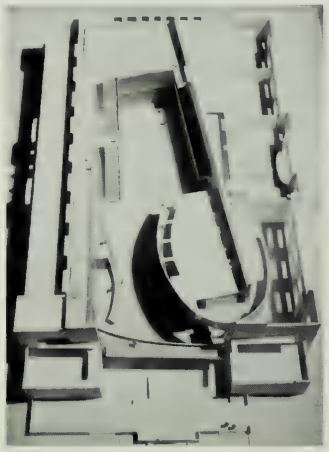
Leach's creations recently earned him two coveted cuisine awards, the James Beard Pastry Chef of the Year and a spot on *Chocolatier* magazine's list of the top ten pastry chefs in America.

Inspiration for his structural desserts is not drawn from architecture, however, but from the shapes of his cooking tools and his penchant for mixing textures with form. He carefully stacks a flaky, delicate caramelized banana tart and then perches star anise at the top, creating a tower as precarious as Pisa.

The real challenge is finding a way to eat one of his eye-catching confections. One jab with a fork and the towering tarts come crashing onto the plate. *Jessie Mangaliman*

DALLAS TO BUILD A CENTER FOR WOMEN AND THE FUTURE

An international Center for Women and the Future has been proposed for Dallas, Texas, as part of the state's millennium celebration. Designed by New York architect Wendy Evans Joseph, the center will occupy a vintage exhibition building at Fair Park, a National Historic Landmark and the last of the great exposition halls of the 1930s.



Joseph's design includes a curving theater, a women's Walk of Fame and interactive exhibits focused on new opportunities for women in the 21st century, all to be inserted into the restored shell of the exhibition building. "The goal is to create an interplay between the exhibits and the historical structure, like the Musée d'Orsay in Paris," Joseph said.

The Foundation for Women's Resources, an Austin-based organization that addresses the economic and professional status of women, is sponsoring the proposal. The group has already spent over $100,000 to survey and secure the building and has started to raise the estimated $20 million needed to renovate it. If the fund raising succeeds, Joseph will begin schematic design next year, in time for an opening in the fall of 2000. *David Dillon*

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PRIVATE ENTERPRISE EMBRACES SUSTAINABLE DESIGN

"The real world of economics has come to sustainable design," announced jurors of the Boston Society of Architect's 1997 Sustainable Design Award Program.

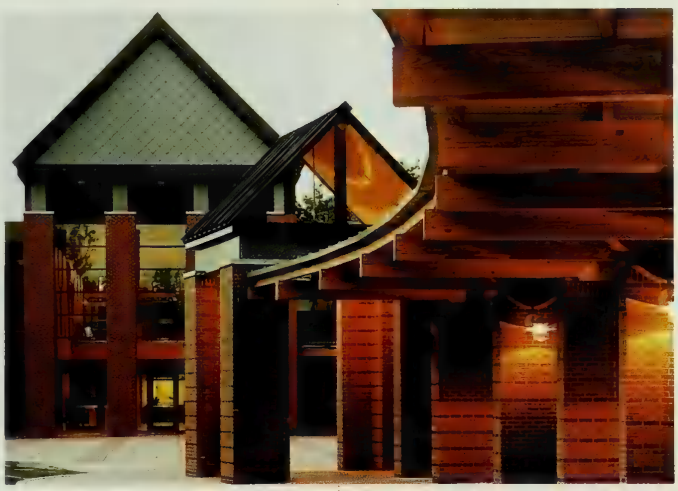
In previous years, submissions depended mainly on grants and public funding, according to Robert Fitzgerald of the BSA. But with corporate submissions from Duracell, Inc., and Patagonia and Security Capital Industrial Trust taking top honors, sustainable design is finding its place next to the bottom line.

The 310,000-sq-ft Duracell World Headquarters in Bethel, Connecticut, shows how corporate and environmental interests can mix. Architects Herbert S. Newman and Partners, PC of New Haven, Connecticut, solicited input from employees and from local wildlife groups at the early stages of design. The building cost $113 per sq ft.

By using double-pane, low-E windows and vapor seals on all exterior walls, Duracell expects to save $125,000 per year in energy costs. In return, Northeast Utilities will provide $300,000 in rebates. The project used recycled materials in the bricks, including one of Duracell's own battery by-products, scrap manganese dioxide.

Jurors called the Patagonia Office and Distribution Center in Reno, Nevada, by the Miller/Hull Partnership of Seattle, Washington, "a stunningly good example of sustainable design" supported by "a model corporation that promotes responsible consumerism."

The rehabilitation of the historic Austin Building in downtown Denver demonstrates sustainability in low-income urban housing. Designed and owned by the Northeast Denver Housing Center, the renovation converted a turn-of-the-century structure into 18 energy-efficient units, almost doubling the density, while preserving original elements like transoms, millwork, cabinetry, and light fixtures.



Duracell used one of its own battery by-products to make bricks for its world headquarters.

With awareness of low-impact design on the rise, juror John Abrams of South Mountain Company Architectural Design and Construction sees the next hurdle for clients and designers as "the information gap." A lack of long-term post-occupancy data and ways of quantifying environmental costs means many project decisions are made in a technical vacuum, he said, adding, "Our work now is to find the numbers and make them available."

Peter Edmonston

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AIA introduces new contracts Documents A201 (General Conditions of the Contract for Construction) and B141 (Standard Form of Agreement between Owner and Architect) will be released by the AIA this month. The new contracts are effective immediately, although there will be a one-to-two-year phaseout of existing contracts. Two forums sponsored by the AIA and the American Bar Association will assemble contractors, owners, architects, subcontractors, lawyers, sureties, and lenders to consider practical applications of the documents. The first will be held in Atlanta October 23–24 and the second in San Diego November 6–7.

"St. Paul on the Mississippi" Guided by Ken Greenberg, a Toronto-based architect and urban planner, St. Paul has launched a riverfront development initiative. Like many American cities, as St. Paul grew it turned its back to the Mississippi. But as it lost ground to the suburbs, the city decided to revitalize its core by turning to face its great natural resource. The plan was spurred by legislation obliging the city to clean up the river and clear heavy industry from its banks. A bridge at Wabash Street will provide the first link to the river. Harriet Island is slated for new docks and a plaza is in the works.



"St. Paul on the Mississippi," the city's plan to reclaim its waterfront.

Controversial competition A commission to design a headquarters building for the cultural foundation of the Caixa Galicia, a financial institution in A Coruña, Spain, was awarded to Nicholas Grimshaw & Partners, Ltd., of London. Many Spanish architects refused to participate in the contest because of a clause that would allow parts of different solutions to be used in the final design. Additionally, there was no remuneration, no cash prizes, and the jury at first included no architects. In response to the architects' objections, many of the disputed provisions were modified.

First pedestrian mall reverts to street Back in 1959 Kalamazoo, Michigan, started a national trend when it turned its traditional main street into a pedestrian mall. Nearly 200 U.S. cities soon followed suit, trying to compete with new regional malls. By now it is well known that the tactic failed: except in a few college towns with lots of walkers, pedestrian malls were perceived as unsafe and shoppers avoided them. This year Kalamazoo came full circle, reopening its main street to cars, as so many other towns have done in the last decade.

Chicago museum to build suburban branch The Chicago Athenaeum, a museum of art, architecture, and industrial design, is planning a 20-acre campus in the northwest suburb of Shaumburg.

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The $30 million, 30,000-sq-ft satellite will include a sculpture garden and a futuristic house. An architect will be selected through an international competition.

I. M. Pei presents papers to Library of Congress A collection that documents the work of one of the late 20th century's most distinguished architects will be given to the Library of Congress by I. M. Pei. The library already holds the papers of Benjamin Latrobe, Charles Follen McKim, and Ludwig Mies van der Rohe. Among many other works, Pei designed the East Wing of the National Gallery of Art in Washington, D.C., built in 1978. Although officially retired, he remains active: in 1995, at the age of 78, Pei designed Cleveland's new Rock 'n' Roll Hall of Fame.

Chrysler Award honors architects Several architects were among the winners of the 1997 Chrysler Award for Innovation in Design. Now in its fifth year, the program celebrates visionaries whose work exemplifies the best in American design. Elizabeth Diller and Ric Scofidio were lauded for their large-scale mixed-media installations, projects in print, and performance works, as well as for architectural commissions. Allan Wexler, an architect/artist who is pleased when critics cannot categorize his work, was cited for "curious hybrids" that reveal the hidden meaning of objects. A revered teacher, he has created sculptures for the homeless and interactive educational museum environments.

Rice University additions Two new buildings at Houston's Rice University offer different responses to existing campus buildings and demonstrate the flexibility of Ralph Adams Cram's master plan. Both form crisply defined shells around open central spaces. Thomas H. Beeby's scheme for the $8.3 million Baker Institute has a Middle Eastern feeling with gallery arcades that encircle a curving chandelier. In contrast, Antoine Predock's Nanoscale Building acknowledges the campus vernacular of planar buildings. Concealed within is an open court filled with angular forms.



The Baker Institute at Rice University has a Middle Eastern feeling.

A good neighbor Five firms were chosen to submit designs for a new campus center at the Illinois Institute of Technology. Nearly half of the school's buildings were designed by Ludwig Mies van der Rohe, who headed the College of Architecture from 1938 to 1958. The finalists are Peter Eisenman, Zaha Hadid, Helmut Jahn/Werner Sobek, Rem Koolhaas/Office for Metropolitan Architecture, and Kazuyo Sejima/Ryue Nishizawa. All participated in a symposium on modernism after Mies, held at the College of Architecture last month.

Students build outdoor classroom A design/build studio at the University of Houston College of Architecture created a classroom in a field for the Red Elementary School. The structure consists of a steel-truss roof embedded in four concrete columns. A low wall serves as both a work surface and as storage for benches, encouraging flexible use of the space. The classroom is designed to provide both protection from and interaction with the outdoors. ■

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CIRCLE 24 ON INQUIRY CARD

Calendar

October 16–17
Hotel Sofitel
Rosemont, Illinois
"Succeeding in Design Build," a conference series sponsored by the McGraw-Hill Construction Information Group and the Construction Specifications Institute, will provide an overview of design-build as well as in-depth industry-specific information. For registration information, call 800/689-2900.

October 17–19
The Merchandise Mart
Chicago, Illinois
In addition to contemporary furnishings, the first annual Chicago Design Show will include exhibitions on U.K. designer John Makepeace and Vitra's miniature chair reproductions. For information, call 800/677-6278.

October 17–November 29
Couturier Gallery
Los Angeles, California
Architectural renderings produced primarily in the 1950s and 1960s by Richard Neutra and prototypes of furniture designed by the architect in the 1930s are on view. Call 213/933-5557.

October 22–February 1, 1998
Canadian Center for Architecture
Montreal, Quebec
"Other Soundings: Selected Work by John Hejduk, 1953–1997" is the architect/educator's first retrospective. An exhibition of architectural toys, "Toy Town," is also on view, from October 22 to May 31, 1998. Call 514/939-7000.

October 24–25
Parsons School of Design
New York City
The conference "Curtain Wars: Architects, Decorators, and the 20th-Century Interior" explores the traditional rivalry between architects and decorators and its relation to the larger culture. Among the participants are Karen Stein, Managing Senior Editor of RECORD. To register, call 212/229-5488 or 800/709-4321.

October 24–26
Mexico City, Mexico
This annual tour of buildings designed by Luis Barragan is organized by the Fundacion Casa Luis Barragan. It is conducted in English and costs $450. For information, call or fax the Casa Museo Luis Barragan at 011/52/5/515-4908; or E-mail fca@hp9000al.uam.mx.

October 25–December 28
Orange County Museum of Art
Newport Beach, California
"Frank Lloyd Wright: Designs for an American Landscape" explores five little-known visionary projects by the architect. More than 150 drawings from the Frank Lloyd Wright Foundation and the Library of Congress are included. Call 714/759-1122.

October 26–29
Hyatt Regency at Union Station
St. Louis, Missouri
"Rail-Volution '97: Building Livable Communities with Transit" is an interdisciplinary gathering of policy makers, citizen-advocates, and planning, design, and transportation professionals. Areas of discussion are linking transit and land use; building citizen and institutional support; and creating a competitive advantage for metropolitan areas. For information, call 800/788-7077 or fax 302/436-1911.

October 27–29
Seattle, Washington
A regional conference and trade show, "Sustainable Building Northwest: Breaking Through the Barriers" aims to provide "real-life solutions" to putting green building theories into practice. Contact O'Brien & Company, P.O. Box 10705, Bainbridge, Island, Wash. 98110; call 206/842-8995; or E-mail obrien@halcyon.com.

October 29–31
Javits Convention Center
New York City
InterPlan, an annual commercial interior design and planning trade show, is to be joined this year by BATIMAT North America, the U.S. version of the European commercial and residential building construction and design show. For information, call 800/950-1314, x2611; to register, visit http://www.interplanshow.com.

October 30–November 2
Camino Real Hotel
Mexico City, Mexico
The next meeting of the AIA's Committee on Design will be held in Mexico City. Call the AIA's PIA information line at 800/242-2837.

October 30–November 2
Austin, Texas
"Linking Practice with Place: How To Do Your Best Where You Are" is the theme of the 1997 Green Building Conference. A trade show exhibition and a competition for a low-income energy-efficient, green home will also be held. Write the Green Building Conference, P.O. Box 90008, Austin, Tex. 78709; call 512/264-0004.

October 31–November 2
University of New Mexico
Albuquerque, New Mexico
The ACSA Southwest Regional Meeting and the AIA New Mexico State Convention are to be held jointly this year. Both organizations will focus on issues relating to codes and the built environment. Call Mary Thomas at AIA Albuquerque at 505/244-3737; or Stephen Schreiber at the UNM School of Architecture and Planning at 505/277-2053.

November 3–6
San Diego Convention Center
San Diego, California
A/E/C Systems Fall, a computer show for design and construction professionals, features product and service vendors and educational events. Contact Pat Smith, A/E/C Systems Fall, 415 Eagleview Blvd, Suite 106, Exton, Pa. 19341; call 800/451-7689; or fax 610/458-7171.

November 5–6
Navy Pier
Chicago, Illinois
The Chicago Buildings and Real Estate Show includes exhibitors of building maintenance, renovation, restoration, and retrofit products and services, as well as educational sessions. Call 213/840-5556 or fax 213/840-9556.

November 5–7
Sheraton New Orleans
New Orleans, Louisiana
"Design-Build 2000: The New Tradition" offers more than 40 sessions covering all aspects of integrated facilities delivery. It is the fifth conference cosponsored by the Design-Build Institute of America and the National Society of Professional Engineers. Call 202/682-5860.

November 6–9
Marriott Biscayne Bay
Miami, Florida
"Environmental and Economic Balance: The 21st Century Outlook" is a conference sponsored by the AIA, the U.S. Green Building Council, and the U.S. *(continued on page 155)*



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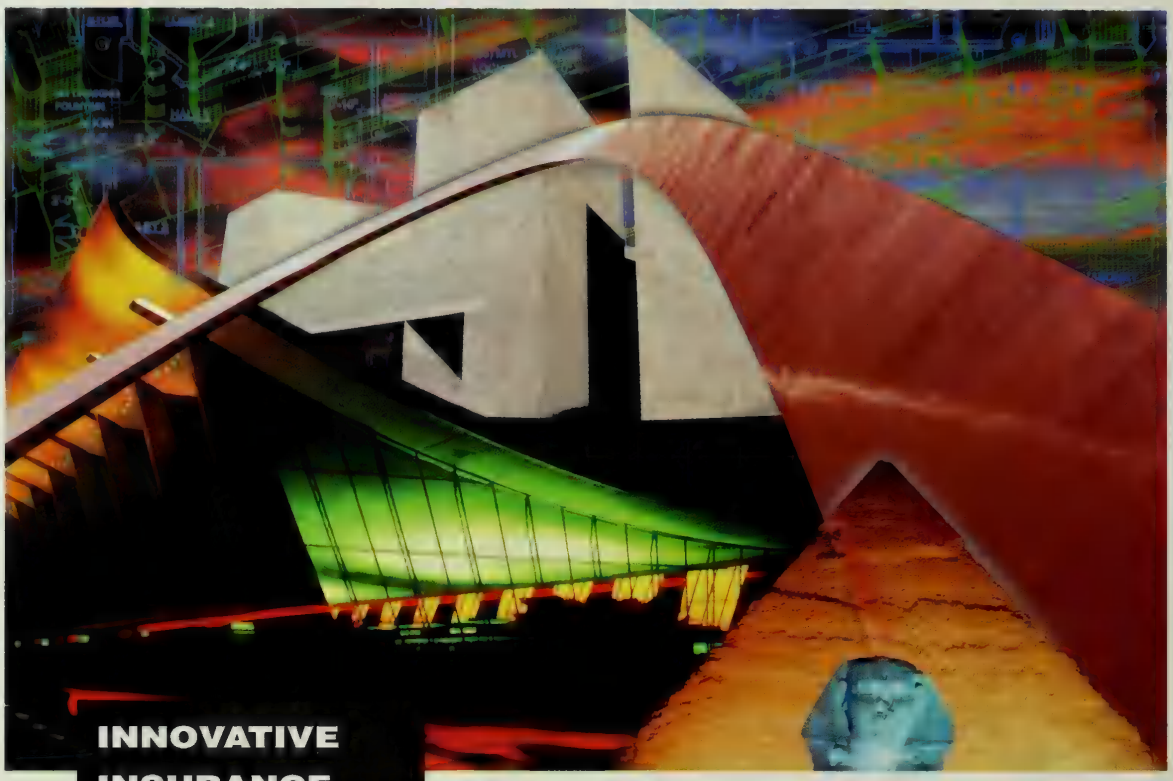
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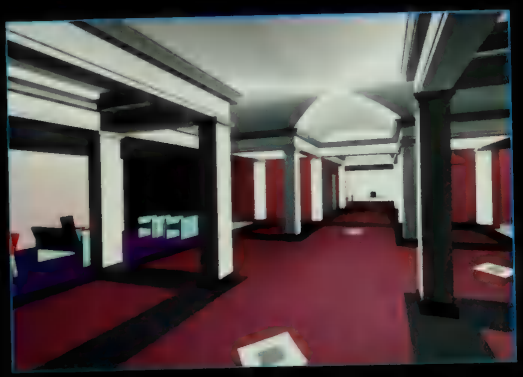
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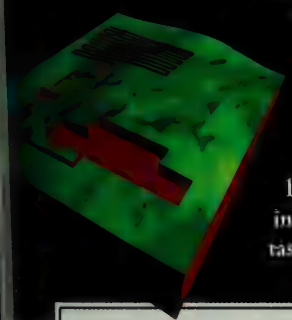
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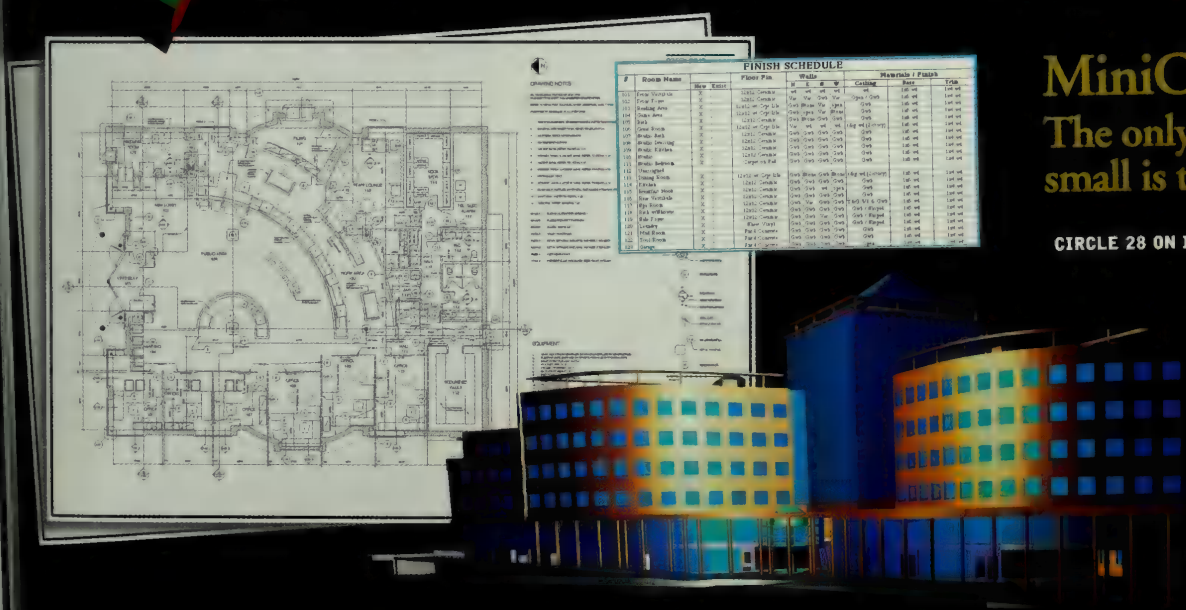
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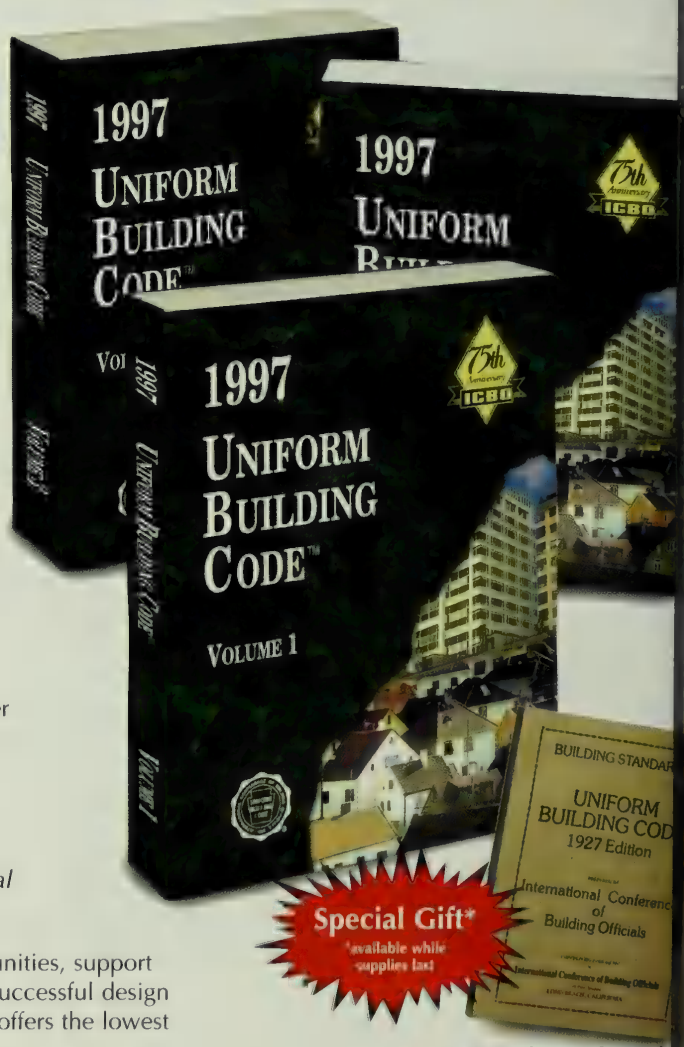
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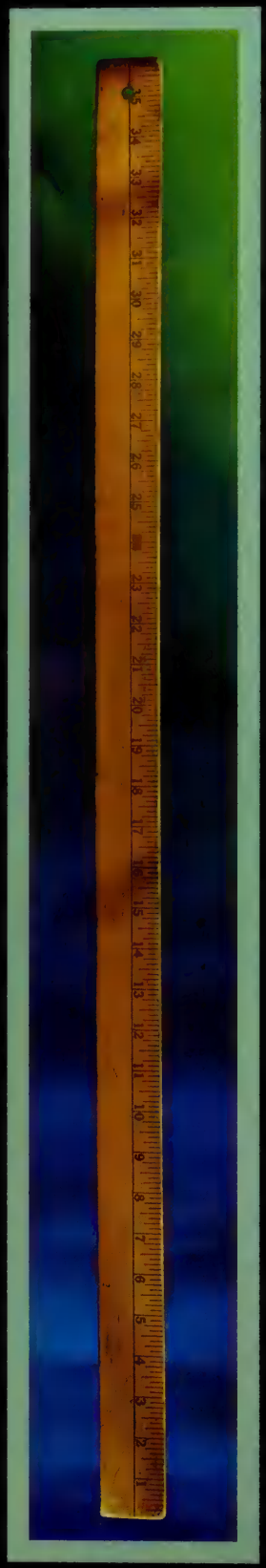
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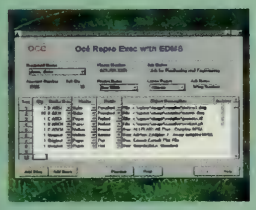
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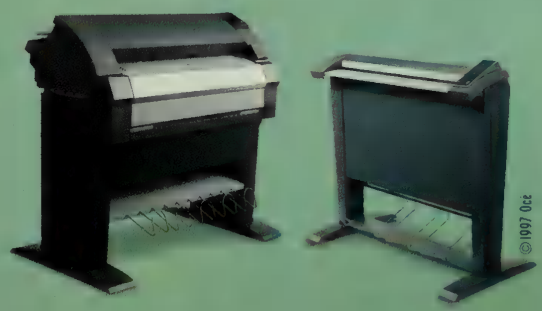


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CIRCLE 31 ON INQUIRY CARD

Good Design *is* Good Business

Business Week/ARCHITECTURAL RECORD Awards

by Karen D. Stein

I am really anti-awards these days," says architect Mack Scogin, FAIA, a frequent juror and winner himself of a slew of honors. So why did the Atlanta-based architect and former chairman of the department of architecture at Harvard University's Graduate School of Design agree to participate on the jury for the first annual Business Week/Architectural Record Awards, sponsored by the AIA? Because "it has the potential of being an incredibly important awards program," explains Scogin. "It gets at what architects can do. It's all about challenging clients. It's about how architects can affect a client's need."

The effect architects can have on clients (and vice versa) is exactly what we were hoping to uncover when we launched this program over a year ago. In recent years, ARCHITECTURAL RECORD and *Business Week*, both owned by The McGraw-Hill Companies, had been contemplating some type of collaboration to ferret out the role of design in business. RECORD's ongoing research had shown that end users and the public at large often don't recognize the contributions architects can make. Oft-heard complaints from our audience of architect readers are that "clients don't understand what we can really do," "we're not seen a problem-solvers on a large scale," and "we're considered a luxury item." I our discussions with *Business Week*, primarily with Editorial Page Edito Bruce Nussbaum, who has become the publication's unofficial desig guru, we were reminded of how market forces, globalization, and tech nological change are continually forcing businesses and institutions t change and restructure their organizations to remain competitive.

With the recognition that creative management practices an creative design solutions go hand in hand to achieve successful busines enterprises, the Business Week/Architectural Record Awards were borr Our shared goal is to honor the very best expression of a client's goal through architecture, rewarding the entrepreneurial spirit in both man agement techniques and physical form: good design is good business.

For RECORD, the allure of launching such an awards program i abundantly clear: not only does it demonstrate the genuine "value-added quality of architects, our primary constituency; it provides a connectio to the readers of *Business Week*, with a circulation of one million reader

HOW DESIGN HITS THE BOTTOM LINE: AN OVERVIEW OF THE 1997 AWARDS

Business will spend about $66 billion this year on new facilities—offices, factories, stores, warehouses—and yet it is conventional wisdom that little about the architectural design of such facilities actually affects productivity and profits. Decades-old research at Western Electric supports this conclusion. The so-called Hawthorne Effect implied that changes in the physical workplace had an effect on worker performance only because they signaled the interest of management. But attitudes are changing. The 153 entrants in this year's Business Week/Architectural Record Awards recognize that intellectual capital is the primary asset of business and that the physical environment is a key to employee satisfaction and productivity.

Several of the winning projects were driven by the imperatives of growth, restructuring, and new ways of working. This is a broad trend, explains Jonathan Ryburg, whose Facilities Performance Group, of Ann Arbor, Michigan, tracks the impact on buildings of business changes. "We find time and time again that as organizations change, they at first stick with their old space standards. As time goes on, they become firmly committed to changing the environment because their old facilities are not working."

Design the team first: The Gemini and Nortel projects came about specifically as a response to changing tasks and the need for environments to support teamwork. Miller SQA did not see how it could shorten its order-to-ship time without getting line workers and front-office personnel to work more closely. An intensely collaborative design effort was the common thread among virtually all the winners. While most architectural design requires the participation of at least owners and users, the number of players, and the degree of research that often went into the winning projects are far beyond tha which has been common in architectural practice.

Miller SQA united architects, a landscape architect, contractors, and suppliers, as well as company personnel, in designing its manufa turing facility. In Switzerland, the UNITOBLER architects realized that their project could not succeed without the participation of citizens

worldwide. And then there are the financial implications. According to a report on the anticipated changes in construction markets over the next 15 years prepared by the AIA, the period between 1996 and 2010 will experience modest but steady gains in overall construction activity as compared to 1991–95. Data compiled by F.W. Dodge and the AIA predict that the average annual volume of contract awards in the years ahead (measured in 1987 dollars) will be $78.4 billion compared to $68.8 billion for 1991–95, with, most notably, the office building sector rising from $10.9 billion to $18.7 billion, industrial buildings rising from $12.7 billion to $14.4 billion, and public buildings rising from $4.7 billion to $5.3 billion. That's a lot of potential fees for architects.

In evaluating the shared roles of business and design, it was important to have representatives from both sides to consider both aspects of the 153 entries. Entrants were asked to explain how their designs responded to the particular needs of their clients, and the clients were asked to provide concrete data on how these designs allowed the businesses to work better, more efficiently, or more successfully. Our group of jurors included committed business leaders and chief executive officers, knowledgeable clients, and entrepreneurial architects.

How do the members of the jury see the relationship of business and design? "Everyone is running around saying 'collaboration, collaboration' and [these submissions] are trying to get at what collaboration is *really* about," observes jury chair Frances Halsband, FAIA, of the blurring of the line between client and architect. Did these submissions provide true insight into how, in the best conditions, client and architect can be inspired by one another? "The business plans submitted were as complete as they could be under the circumstances," says Terrance R. Flynn, Senior Advisor to the Vice Chairman of MBNA America Bank.

Craig Hodgetts, AIA, principal of a Los Angeles–based firm known for its cutting-edge design, reports that "there was considerable dismay among several jurors that some 'architects' architects' hadn't seen fit to submit projects." While jury members may have been disappointed that more high-profile projects were not submitted, they attributed it to the newness of the program and the traditional separation of business and design. Says Hodgetts of RECORD and *Business Week*, "There's virtually no crossover between the media in which you communicate to these groups."

1997 Business Week/Architectural Record Awards jury:

Stanley G. Boles, *FAIA, principal, BOORA Architects, Portland, Oregon*
Terrance R. Flynn, *Senior Advisor to the Vice Chairman, MBNA America Bank, N.A., Wilmington, Delaware*
Robert Frasca, *FAIA, principal, Zimmer Gunsul Frasca Architects, Portland, Oregon*
Frances Halsband, *FAIA, principal, Kliment & Halsband, New York City*
Robert Hillier, *FAIA, principal, The Hillier Group, Princeton, New Jersey*
Craig Hodgetts, *AIA, principal, Hodgetts & Fung, Santa Monica, California*
Richard Koshalek, *director, The Museum of Contemporary Art, Los Angeles*
Paul O'Neill, *Chief Executive Officer, ALCOA, Pittsburgh*
Mack Scogin, *principal, Scogin Elam & Bray Architects, Atlanta*

And that is the crux of the problem posed by these awards. While the program may eventually focus on accomplishment, so far it has succeeded more in posing a challenge for an idealized client-architect relationship. As juror Robert Hillier, FAIA, notes, the changing role of architects should be taken more seriously in approaching this goal. Says Hillier: "Architects are more than just designers of buildings. Only 52 percent of [an architect's] business is traditional architecture. The rest is consulting, problem-solving. It's front-end stuff: understanding a company's business to organize its real estate more effectively."

Are clients and their architects willing to accept the notion that design can be used as a marketing tool, a way of putting entrepreneurs on the map while improving their businesses? Offers Hodgetts: "Maybe it's considered a compromised position to be a business-oriented architect. But there's greater receptivity on the part of business than architects are aware of—it's leverage architects can take advantage of." That opinion is echoed on the business side. Flynn wholeheartedly endorses the idea of "using architecture to keep businesses and people on the leading edge." Scogin agrees. "Architects have been maligned as businesspeople. We're seen as heavy risk. This is an opportunity to show that we can carry the risk and that we can carry the day."

See Business Week*'s November 3 issue for more on the awards.*

users, and local political officials. At Gemini, restructuring happened concurrently with facilities design, so the architects found themselves working with a succession of personnel. As business changed for Nortel, the conversion of a factory to house a limited number of people suddenly became the solution for 5,000 headquarters staff. Every element of the Brew Moon concept was worked out with its entire team, including graphic designers and chefs as well as architects.

Ryburg says such complex teaming is becoming more common as business culture becomes more "high context," that is, "much more interactive and dependent on getting information from people."

Project delivery: The rapidity of change at winning companies means that the time permitted to bring facilities on line can be breathtakingly short. Design and construction was only four months at Gemini, only 18 months at Miller SQA, and only 11 months at Nortel. But a great deal of dialogue if not design usually preceded the commitment to build, so alternatives to be considered during final design were few and decision making was rapid. Surprisingly, the most common form of construction for these projects was the negotiated contract and not design/build. In fact, none of the winners were done using design/build, supposedly the quickest method. Nor was it design/bid/build, which offers the highest price predictability but is often the slowest method.

What kind of design firms were winners? Another surprise: relatively few were "experts" in the building type for which they were selected. Gemini, for example, "said they sought a fresh, creative look at the whole enterprise," explains partner Charles Rose. William McDonough, FAIA, had done few projects more complex than a corporate interior before Herman Miller selected him. Julie Snow, AIA, and her predecessor firm, James/Snow, were virtually untested designers when first hired by Phillips Plastics some 12 years ago. Randy Brown, AIA, transformed the environment of the Greater Omaha Packing Company with almost no commercial-office experience. Most of these clients seemed suspicious of firms who promoted specific restructuring expertise, presuming cookie-cutter solutions.

In general, projects worked when the owners had clear objectives realized by design that opened opportunities for workers to do a better job. **James S. Russell**



Project: *Miller SQA*
Holland, Michigan
Client: *Miller SQA*
Building Type: *Office/light manufacturing*
Award Category: *Private sector, under $25 million*
Key Players: *Miller SQA—Robert Enders (vice president, facilities management); William McDonough + Partners (architect)—William McDonough, FAIA, Chris Hayes; VerBurg & Associates (architect of record)—David VerBurg; Pollack Design Associates (landscape architect); Owen-Ames-Kimball (general contractor)*



A DAYLIT STREET HELPS BUILD A COLLABORATIVE CULTURE

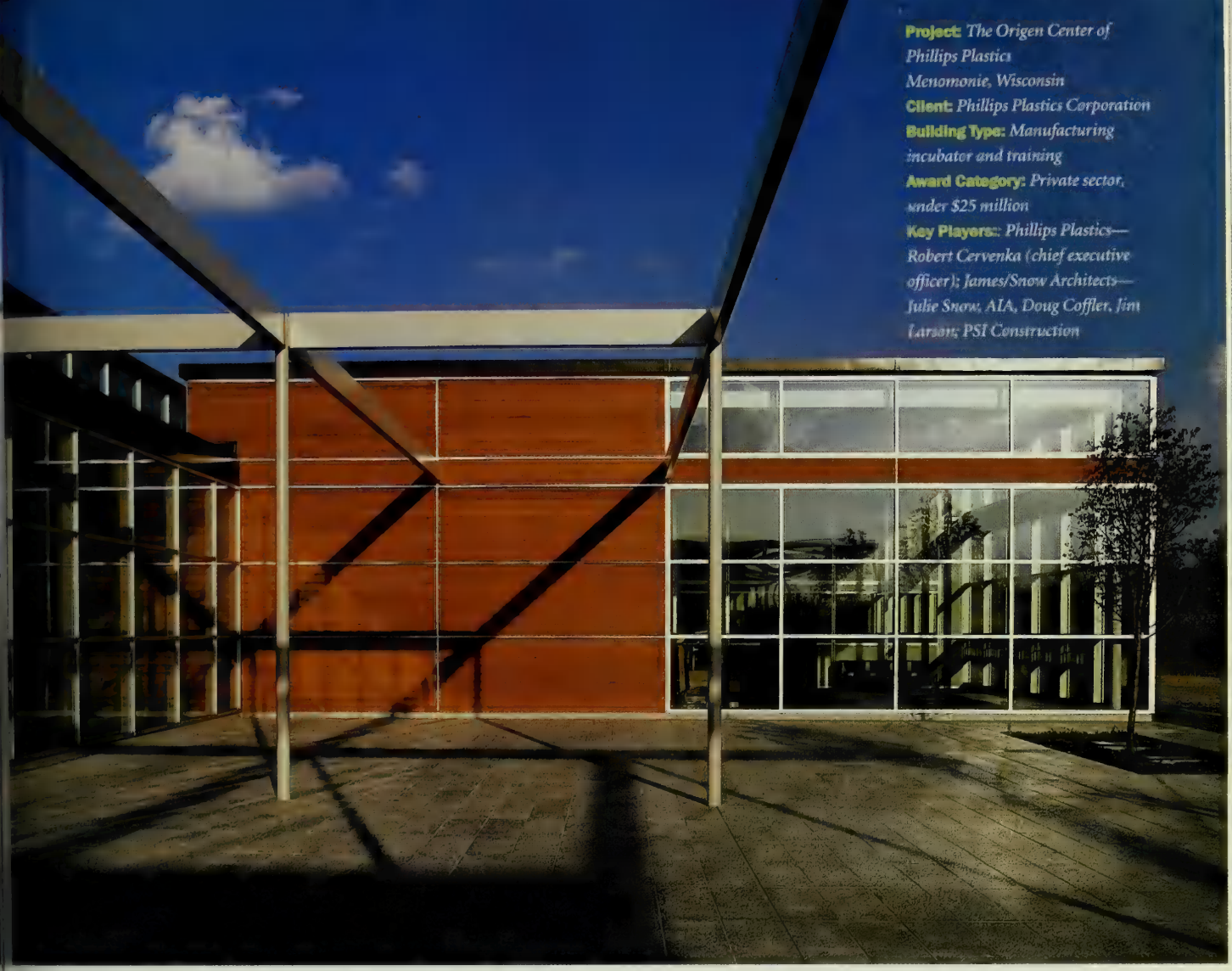
In hiring William McDonough + Partners as architects for a new office and manufacturing facility, Miller SQA sought to reconcile the architect's well-established ecological orientation with a need to be innovative in its workplace processes. The budget ($53 per sq ft) and the 18-month start-to-completion schedule set tight time constraints.

The client assembled a predesign team that included its operations and administrative staff, a general contractor, a landscape ecologist, architects, an HVAC contractor, electrical contractors, glazing suppliers, furniture specifiers, and others. With such expertise readily at hand, the overall design and the materials considered for the project were evaluated for the optimization of resources and energy use.

But the designers were also charged with creating a building that encouraged greater collaboration between the 120 office and administrative personnel and the 600 manufacturing workers. To be competitive in the office-furnishings market required compressing the months-long order-to-ship time to two weeks. (Miller SQA is a division of contract-furniture giant Herman Miller.) The company felt that consistently mee ing this schedule could occur only if sales, management, and productio personnel constantly interacted to remove logistical impediments.

In a synthesis of environmental and business goals, the archite designed a wide, skylit "street" that separates office from manufacturir (above) while bringing daylight to both and inviting workers, wheth their collars are blue or white, to mix. [For more on facilities that mar manufacturing and front-office functions, including Miller SQA, s RECORD, December 1996, pages 26–33.] Ample provision of daylight both manufacturing and office spaces became both an energy-conserv tion strategy (reducing lighting and cooling needs) and a workpla amenity. Fresh-air volume is much higher than code requirements.

A pioneering post-occupancy evaluation funded by the Depar ment of Energy rated the building significantly superior to its predecess in daylighting, electric lighting, and air quality. Both office and manufa turing workers said job satisfaction, overall work performance, and ove all work spirit are better in the new building by a margin of more than percent. The jury also lauded Herman Miller's long commitment design. Said one, "It's not one building, it's an appropriate culture." *J.S.*



Project: *The Origen Center of Phillips Plastics*
Menomonie, Wisconsin
Client: *Phillips Plastics Corporation*
Building Type: *Manufacturing incubator and training*
Award Category: *Private sector, under $25 million*
Key Players:: *Phillips Plastics—Robert Cervenka (chief executive officer); James/Snow Architects—Julie Snow, AIA, Doug Coffler, Jim Larson; PSI Construction*

PHILLIPS PLASTICS INVENTS A NEW BUILDING TYPE TO INCUBATE IDEAS

"The mythology is that you can't do creative work in a brand-new building, that you have to be in a beat-up old warehouse somewhere," commented juror Frances Halsband. A long-term client-architect relationship gave both parties the confidence to erect a new type of facility.

Phillips Plastics seeks growth by developing new products and new manufacturing processes. When either is successful, the company spins it off into a new product line or business. Because it was costly to build a new production facility before a product was proven, the company sought a lower-cost method. Phillips chose to drive innovation into manufacturing more efficiently by combining the nurturing of new product lines with a prototype manufacturing and training facility. It also planned that combining these functions would generate new product ideas and help draw in more outside business.

Since such a building type was unprecedented, the company asked the architect to meet performance expectations rather than work to a program or budget. These were completed and approved during the design process. For flexibility, architect Julie Snow, AIA, designed the project on a 12-by-36-ft structural grid. The incubator and prototype manufacturing areas have long spans, permitting ready reconfiguration.

The entire structure shares a design vocabulary of steel frame with window-wall infill, accented by wood cladding and a granite base. To encourage the company's collegial approach, the glass walls are carried inside, making even the prototyping and manufacturing areas as visible to workers and visitors as their processes permit. Support areas—including dining and break-out spaces, and an outdoor terrace—are intentionally centrally located, open, and inviting.

The company says the project has "exceeded every expectation." Three startups have begun operation since 1995, with one already spun off as a new business unit. The flexibility of the workspace and the ability to combine resources have also lowered startup costs. The training services group has exceeded its goal by 25 percent and has created new opportunities for the company by expanding its profile in the community, as local companies and educational institutions have become involved with Phillips. "I really liked the spareness of it," commented juror Stanley G. Boles. "It looks like every move meant something." *J.S.R.*



Project: *Greater Omaha Packing Company*
Omaha, Nebraska
Client: *Greater Omaha Packing Company*
Building Type: *Corporate offices*
Award Category: *Private sector, under $1 million*
Key Players: *Greater Omaha Packing Company—Henry Davis (president), Angelo Fili (vice president); Randy Brown Architect—Randy Brown, AIA; John Luce Interiors, Inc.*



MEAT-PACKER'S SALES ASSOCIATES GRADE NEW OFFICES PRIME

Tiny sales offices attached to large industrial facilities are common, but they rarely rate architectural attention. The few thousand square feet designed by architect Randy Brown, one juror concluded, "actually restructured the social organization of the sales force. . . . The architect restructured the way business was done."

The owner's mission was twofold: to create a more stimulating, more collaborative, and less fatiguing environment for sales staff and to offer a good first impression to current and potential clients, who visit this meat-packing facility to assess product quality. The design team included not only the architect, but Greater Omaha's president, vice president, plant managers, and sales associates.

To help the owners understand the concepts under consideration, the architect worked out design ideas using CAD and presented them in wire-frame views, which could quickly be updated. Out of this intense collaborative process came the idea of putting all the sales staff around one 6-by-50-ft table, which would also accommodate the phones, computers, and monitors that link the associates to prospects worldwide. (In the previous facility, some sales staff used private offices.) Metal mesh screens separate this area from the public reception space. A glass-enclosed conference room with a view into the plant has become a private place that sales staff use to close deals.

The design conveys the company's commitment to quality—especially cleanliness—through materials carried into the space from the manufacturing area: stainless steel, ceramic tile, glass, perforated metal, and the partially exposed bar-joist ceiling.

The redesign has made such an impression that visitors have come from as far away as China to tour the offices and plant. "What really amazed [president Henry Davis] was the kind of recognition that he was getting by word of mouth," explained one juror. Davis says it has especially improved the effectiveness of sales staff, who compliment the quality of light (which reduces computer-screen glare), the daylight, and outdoor views. The large table has eased the exchange of vital market information and helped develop greater team camaraderie, yet the conference rooms offer privacy when needed. Sales have doubled in the new space, and Greater Omaha Packing has added new sales associates. *J.S.F.*





Project: *Gemini Consulting Cambridge, Massachusetts*
Client: *Gemini Consulting*
Building Type: *Headquarters offices*
Award Category: *Private sector, under $5 million*
Key Players: *Gemini Consulting—Richard Strickland, James Monk, David Teiger; Thompson and Rose Architects, Reiter & Reiter, a joint venture—Charles B. Rose, Michael Grant, Wellington Reiter, AIA; Shawmut Design and Construction—Tom Gomat, Charlie Mann*

CONSULTANT DOES FOR ITSELF WHAT IT PRESCRIBES TO OTHERS

Akin to what the company does for other businesses, Gemini, a management consulting firm, sought in the design of its own headquarters to "transform the way work is accomplished, encourage creative solutions to business problems, improve communication within the organization, and capitalize on information technology." Gemini began this project as a means to develop a prototype for the firm's 22 offices worldwide.

The client selected two firms from among those it interviewed and proposed that they work together. Conventional programming was augmented by focus groups and a review of relevant studies in order to devise optimum working methods for the company. The company evolved as the space was designed, which meant that some participants who began the project had left before it was completed.

The architects and the construction manager analyzed possible sites for suitability and for both fit-out and operating costs. Once the site selection was made, the team held a series of day-long design workshops to define a common design vision for the project. "Everything had to be done in 'out-of-the-box' kinds of ways," commented Thompson and Rose partner Charles Rose. By doing so much work up front, the final design and construction of the project was completed in only four months.

The project reflects the company's nomadic working method. There are few private offices or personal cubicles. Rooms are devoted to projects rather than personnel. "Just-in-time" space—temporary homes for consultants who usually work at clients' locations—is placed at the center of office circulation (above left), where catching up with home-office news is easiest. A café and kitchen area offer other opportunities for casual interaction. Movable walls transform smaller rooms (above right) into a place where the entire staff can meet. "I rated this one fairly high," commented juror Frances Halsband, "because [the design team] has really gotten into designing special little places for specialized activities.... They really have fitted the environment around a person."

According to a post-occupancy evaluation, the project-oriented spaces please clients, whose projects now have visible "real estate" within the firm. The nonterritorial nature of the space has made change and expansion easier, since there are no longer fixed business units to uproot. By visibly conveying Gemini's outlook, the offices help recruiting. *J.S.R.*







Project: *UNITOBLER*
Bern, Switzerland
Client: *Canton of Bern*
Building Type: *University*
Award Category: *Public sector, over $25 million*
Key Players: *Canton of Bern—Urs Hettich, Werner Probst, Jürg Siegenthaler, Jürgen Waibel; Architects Associated UNITOBLER—Pierre Clémencon, Daniel Herren, AIA, Andrea Roost, Gody Hofmann; University of Bern—Elias Köchli, Alfred Lang, Wolf Linder, Kilian Bühlmann, Marianne Aeschbacher*

A UNIVERSITY AND ITS HOME CITY COLLABORATE TO INNOVATE

Until the Tobler chocolate company decided to abandon a factory it had on a large site in Bern, Switzerland, it looked like the city's university could not unite facilities scattered over 22 locations without moving to a suburban area. Through the use of an innovative design and consensus-building process, the city took advantage of the unexpected availability of a suitable site. "It brought together the government, the university, and the architects," observed the jury.

The city quickly acquired the Tobler site before private investors did. But it had to do much more. First, it hired three architects—Pierre Clémencon, Daniel Herren, AIA, and Andrea Roost, each of whom offered specific expertise—avoiding a time-consuming multistage competition and budget-revision period. "They hoped that three pairs of eyes would see more than one," explains Herren. The project was later approved in a local referendum.

Tobler left behind almost 20 structures, the earliest dating from 1898. The architects removed smaller structures to create a treed, gravel courtyard within the block. (One small houselike building was retained and converted to a student union at the center of the court, above right.) The open space serves both the university and existing housing on the block, which was converted for students. Clémencon, Herren, and Roost retrofitted the largest factory structure for various departments. They placed the library within the large light court of a 1930 addition (above left). The remodelings were oriented for best breeze and light exposure, which permitted the architects to avoid the use of air-conditioning.

Obtaining this result involved an extensive consultative process. The architects prepared studies for the site that considered public housing or commercial development as alternative uses. The team obtained consensus among university officials and local political officials, convincing them to waive a requirement for 416 parking spaces, for example. The design team also extensively involved users during programming and concept studies.

The project has reinvigorated the neighborhood. New small businesses have begun to establish themselves, and owners are upgrading rental housing. An independent panel lauded the project for its conservation of existing buildings, low energy use, and moderate cost. *J.S.R.*







Project: *Dr. Joseph J. Bulmer Telecommunications and Computations Center*
Troy, New York
Client: *Hudson Valley Community College*
Building Type: *Academic*
Award Category: *Public sector, under $25 million*
Key Players: *Hudson Valley Community College—Joseph J. Bulmer, Ronald Payson; Einhorn Yaffee Prescott, Architecture & Engineering—John S. Pocorobba, AIA, Lance Fersen, George Marshall, Nick Ferzacca; Shen Milsom & Wilkie (audio/visual consultants)*

NEW MEDIA IS HUDSON VALLEY COMMUNITY COLLEGE'S MESSAGE

The jury admired this project because the client, a community college, took an expansive view of how it could serve its vocationally oriented students in an era of rapid business change. It then forged the partnerships that made the project possible. Hudson Valley Community College President Joseph Bulmer had a vision of a facility that would combine training and production in increasingly related television and computer technologies, preparing students for both traditional and "new media" careers.

The jury was particularly impressed with the business plan and program. The program merged training in television production, computer applications, and content creation for such emerging electronic technologies as CD-ROM and the Internet World Wide Web. The business plan anticipated that local companies would rent out the facilities; the college planned to plow back the revenue, using it to update hardware and software. The companies would benefit from access to facilities that were otherwise unavailable locally. The students benefited from production and training opportunities and exposure to possible employers.

The design team provided a teleconferencing suite; video-production and broadcast areas; and an auditorium equipped with extensive audio/visual capabilities, placed near meeting rooms. The center serves a larger community by producing and broadcasting educational programs ("distance learning").

The architect oriented the building's prominent telecommunications tower and multistory atrium to the street, marking a new campus entrance. "It created a symbol for the college," noted one jury member. The atrium acts as a central gathering place and a break-out area for the nearby ground-floor auditorium.

The marriage of college and private sector has been a conspicuous success for the project. Numerous corporate, government, and public and private associations have used various facilities. One company used the building to help launch a new telecommunications product. Within two years the center had met 60 percent of its three-year business-plan revenue goal. The heavy use has also created new public-private collaborative opportunities and has helped students build skills. "They are getting to meet the business leaders of the community at this place, which I thought was really a positive outcome," explained juror Mack Scogin. *J.S.R.*





Project: *Brew Moon Restaurant and Microbrewery*
Boston, Massachusetts
Client: *Brew Moon Enterprises*
Building Type: *Restaurant*
Award Category: *Private sector, under $5 million*
Key Players: *Brew Moon Enterprises—Eliot J. Feiner; Darlow Christ Architects—Peter G. Darlow, AIA, Catherine Christ, Paul N. Scanlon, Mary Jo Verde; plus designs inc (graphics); CAFCO (construction manager)*

REINVENTING THE BREW PUB PUTS COLLABORATION ON TAP

Since microbreweries and brewery-pubs are not new, the owner chose a collaborative approach to develop a new chain in which every detail would work together to create a distinctive appeal. Among the client's selection criteria was the designers' willingness to work as part of a team that would conceive every element of the restaurant down to the napkins. (Just as the whole group evaluated architect Darlow Christ's work, the architect team members helped name particular brews.)

Three projects were submitted to indicate the responsiveness of the design concept to different settings. The architect and graphic designer were selected first, followed by the food-service consultant, equipment manufacturer and general contractor. Each location's key staff—the general manager, chef, and brew master—was also involved. The owner also asked team members to take 10 percent of their fee in stock options in this startup company.

Typical microbreweries surround patrons with the tanks, pipes, and valves of the brewing process and may include stubelike dark wood and bright brass trappings. The concept the team hammered out i to make the microbrewery experience less about beer connoisseurshi and more casual, contemporary, and relaxing. Beermaking is visible a Brew Moon, but paraphernalia is generally located behind the bar o behind glass. Though graphic friezes and panels pictographically depic the brewing process, it is done as much to lighten the mood as it is to te the beverage-making story. Walls and ceiling are scalloped and wave shaped in wheat and barley colors, abstractly evoking beer.

The early outlets of the chain were studied by the Harvar Business School. The results indicated that the design "greatly added t the customer's identifiable satisfaction" and "communicated a sense quality and uniqueness." The environment was credited with contributin significantly to profitability. The Harvard study found that customer identified the locations as restaurants as much as pubs, offering the owne a broad niche should the microbrewery craze fade. The client also attrib utes the chain's success to the commitment that came through the tea members' financial investment in its growth. Observed one juror, "Th architects were brought in at the very beginning. The owner absolutel felt that they were critical to the development of the entire project." *J.S.*





Project: *REI Flagship Store*
Seattle, Washington
Client: *Recreational Equipment, Inc.*
Building Type: *Retail*
Award Category: *Private sector, over $25 million*
Key Players: *REI—Wally Smith, Jerry Chevassus; Mithun Partners (architect)—Bert Gregory, AIA, Thomas Emrich, AIA, Robert Deering, AIA*

HANDS-ON SELLING HELPS COOP BEAT CHAINS AT THEIR OWN GAME

Even a hard-bitten jury could not resist the idea of a sports store that includes a test track for mountain bikes. The corporate structure of Recreational Equipment, Inc. (REI)—a cooperative operated by its members—does not make it naturally equipped to compete with giant retail chains and active-sports apparel makers, but that is exactly what its Seattle flagship store was intended to do. [For more on this project, see RECORD, March 1997, pages 94–99.]

"This is the one time they've stepped out," observed a juror familiar with the company's older stores. With discounters and retail giants poised to chip away at the cooperatives franchise of "muscle-driven" outdoor sports, such as bicycling, mountain climbing, and camping, the cooperative launched a preemptive strike in the form of this 98,000-sq-ft store in Seattle, its hometown. Even though the cooperative had grown from a small group of climbers in 1938 to 1.4 million active members, such a departure might readily have alienated members, all of whom are empowered to vote for the board of directors.

Several of architect Mithun Partners' design team were themselves outdoor-sports enthusiasts, and encouraged the cooperative to make a "try before you buy" philosophy central to the store's design. Hence, the store's wilderness-evoking garden and waterfall double as a bicycle track (above left). A 65-ft climbing rock was positioned not only to test gear but as a glass-enclosed beacon from adjacent Interstate 5. Though not as prominent, similar testing opportunities dot the store.

The coop outlined specific sustainable-design goals that also were realized in such elements as natural ventilation and heavy timber framing recovered from demolished buildings. Display areas, a café, and meeting rooms offer members noncommercial means for socializing.

The store, one juror commented, "has a lot of integrity from an architectural point of view, without negating the sales objectives." It opened to wide publicity and immediate acceptance. Store sales increased 212 percent during the first five weeks of operation.

Year-end sales were 60 percent ahead of what REI describes as an aggressive budget. Membership sales were up 31 percent over the previous year. Located at the edge of Seattle's downtown, it has also proven a top tourist attraction. *J.S.R.*



Project: *Nortel Brampton Center*
Brampton, Ontario, Canada
Client: *Nortel-Northern Telecom Limited*
Building Type: *Corporate headquarters*
Award Category: *Private sector, over $25 million*
Key Players: *Nortel—David Dunn; Helmuth, Obata + Kassabaum (architect)—Thomas H. Robson, AIA, Tom Harris, Timothy Conroy, Gerald Mueller, Michael Shirley, AIA; Bregman + Hamann Architects (associated architect)—Bill Nankivell*

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In large businesses, the "skunk works"—highly motivated teams who produce wildly successful products from the leftovers at hand within facilities no more glamorous than garages—have reached mythical status. AT&T, General Motors, and other companies have tried to extend such a metaphor throughout the enterprise. Enter Nortel, which has evolved from a manufacturer of switching equipment to a provider of a broad range of telecommunication network products.

"What impressed me the most," commented juror Mack Scogin, "is the relationship the client and the architect have had over a long period of time." Explained Michael Shirley, AIA, the project's design director, who is based in HOK's Houston office, "This project represented the latest thinking of both companies."

Nortel wanted to take workers located in three leased downtown towers, which had insufficient space for expansion, and consolidate them in one headquarters. It ended up reworking a surplus factory for office use, putting 3,000 workers into 600,000 sq ft of space on one level—the equivalent of a 50-story building. Such a large, uninterrupted spac offered virtually unlimited flexibility. The company also anticipate facilities-cost savings adding up to $250 million over 10 years. The con version design had to overcome the limitations of the huge structure however, and provide orientation, a sense of place, and amenities to mak up for the views and daylight conventional office buildings offer.

The architects chose a city-planning metaphor, breaking the vas space down into "streets" and "blocks" (above), punctuating them wit daylit "piazzas" and dotting the floor with street-fronting retail amenitie like fitness centers and cafés. Work groups are identified by specific mate rials, signage, and colors. Each group could choose completely privat offices and typical cubicles or team-oriented furnishings and carrel-lik accommodations for drop-in field staff. Change, which occurs often, regulated by a facility "zoning" code.

The company initially met resistance, as the factory was though to be a lower-quality work environment than the class A office space le behind. Now, it says, acceptance is high, and workers ask to be moved t the new facility. A post-occupancy evaluation, which was not complet prior to judging, validates the scheme, according to Nortel. *J.S.R.* ■

both/and

h/and. Not either/or. Both good design and business performance. Both the beauty of good architecture and the dom of environmental stewardship. Both the improving of the quality of work life for people and the creating of ductive workplaces for organizations. Both adhering to the principles of good facility design and supporting the good ign of a business for each client or customer. Achieving this balance is only one of the lessons Herman Miller learned through its work with architects and customers over the years. We try to put this balance into practice in our ı facilities and our own business. We like to think that living this balance helps us put this lesson to work for you.

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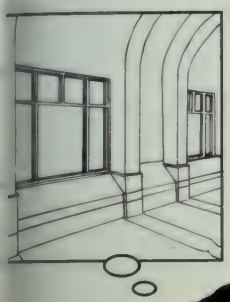


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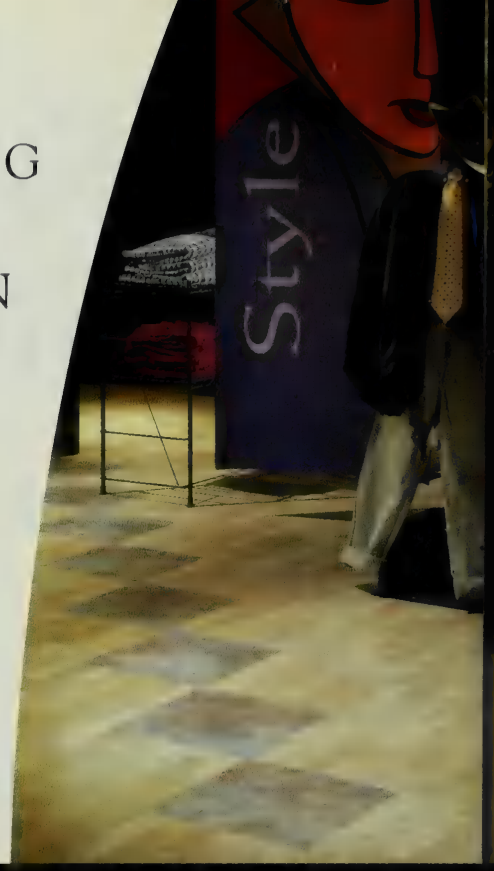
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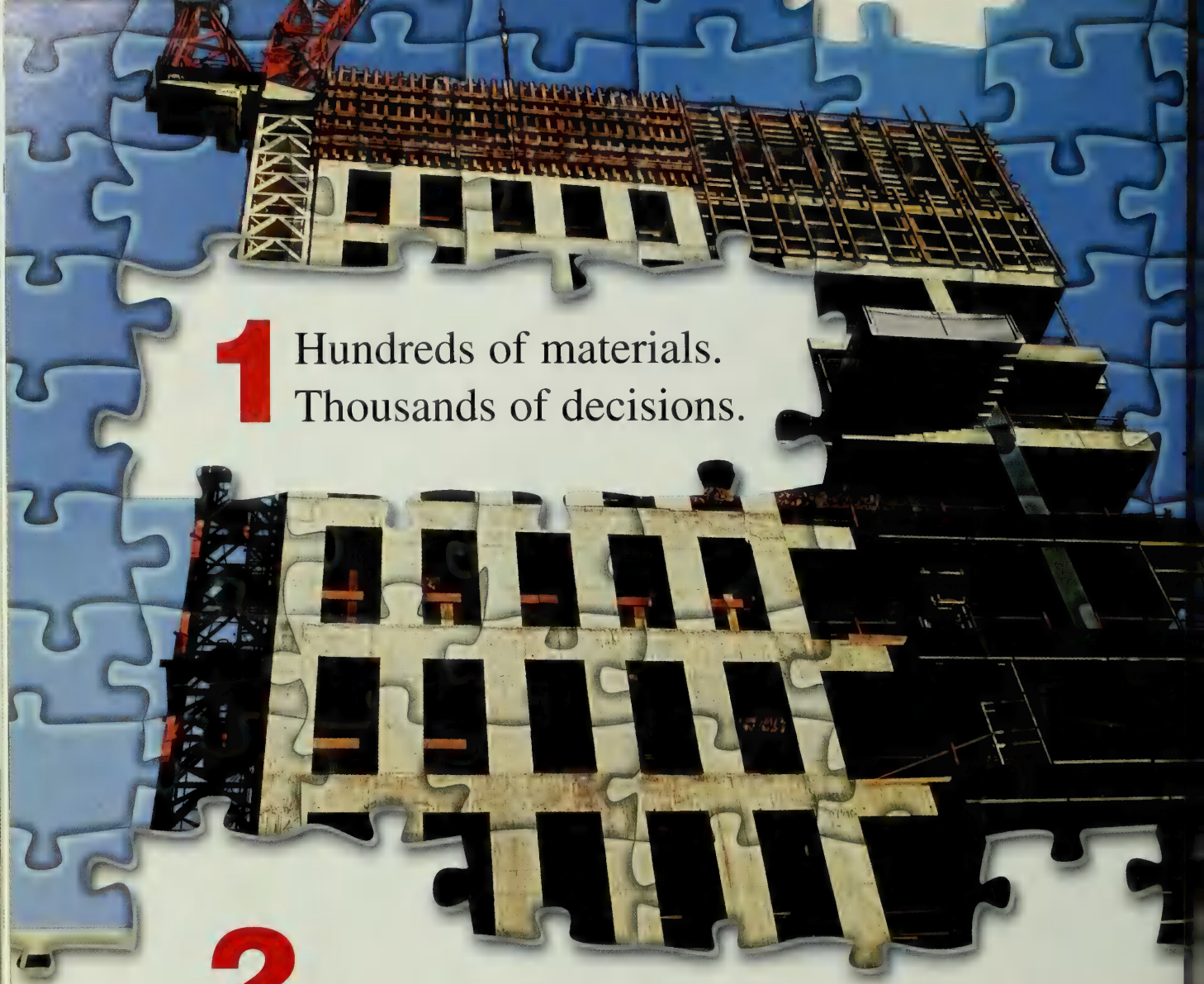
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Frank Gehry's July 1991 sketch of the museum (below). Polaroids and models of the design's progress in his Santa Monica studio (bottom). The final design model (opposite).

PROJECT DIARY: Frank Gehry's dream project, the GUGGENHEIM MUSEUM BILBAO, draws the world to Spain's Basque Country.



Everyone is saying it: Frank Gehry is a genius. It's so much the conventional wisdom these days that even the architect's detractors agree. But don't tell that to Gehry. "I'm being geniused to death," he says. This "genius" is presumed to know nothing of construction schedules and cost. At least that's what was implied when Gehry's ability to complete the Walt Disney Concert Hall in downtown Los Angeles was recently challenged, despite the fact that his 66-person architectural firm routinely prepares working drawings. Simultaneously lauded as a national treasure and dismissed as a creative whirligig unable to focus on the so-called prosaic, to some Gehry has the overall image of an absent-minded professor, an impression only heightened by his shock of Einstein-like white hair. But one of the biggest long-standing misconceptions about the 68-year-old Gehry is that he does things casually. He is, after all, a pioneer in the use of CATIA, a three-dimensional computer modeling system originally developed for the aerospace industry, as a way of translating complex architectural forms into constructible fabrication data. With CATIA acting as interpreter, his sculptural form making has become both more ineffable and more comprehensible. The result is unique: he holds sprouting, colliding, tumbling shapes somehow in repose. At best, a Gehry design maintains dramatic opposites in such exquisite balance that the building itself expresses joyful release from constraint. And controlled release was exactly what Spain's Autonomous Basque Community, known more informally as the Basque Country, wanted. No longer subject to the restrictive policies of Francisco Franco's dictatorship, and hoping to combat the violent impression produced by underground terrorist groups demanding secession from Spain, the Basque powers-that-be sought to ensure the region's vigorous future by remaking its public identity. By the end of the 1980s, the Basque Country had embarked on a $1.5 billion regional redevelopment plan. In searching for international appeal, Basque officials set their sights on the Solomon R. Guggenheim Foundation and a visible architectural symbol of a new era.

by Karen D. Stein

WINTER 1991 The Basque redevelopment plan is based, in part, on the region's location in northern Spain with its proximity to France and Italy and Germany beyond—it's at the crossroads of Europe. Members of the Basque regional government conclude that an international institution of contemporary art would bring them newfound cultural prestige and a steady stream of tourism to their capital city of Bilbao. The Guggenheim Museum in New York City is closed for renovation, but in the meantime the museum's new director, Thomas Krens, is exploring venues beyond its flagship building, designed by Frank Lloyd Wright, to be part of an international "constellation" of institutions where "each plays an individual role that contributes to the [Guggenheim] identity." Hans Hollein, of Vienna, has a scheme for a Salzburg Guggenheim built inside an Austrian mountain, and plans for additional space to relieve the cramped quarters of the Peggy Guggenheim Collection in Venice are considered. Though these projects eventually falter, the word is out that the Guggenheim is in expansion mode.

Project: *Museo Guggenheim Bilbao Bilbao, Spain*
Owner: *Fundacion del Museo Guggenheim Bilbao*
Architect: *Frank O. Gehry & Associates—Frank O. Gehry, FAIA, design principal; Randy Jefferson, AIA, project principal; Vano Haritunians, AIA, project manager; Douglas Hanson, AIA, project architect; Edwin Chan, project designer; Bob Hale, Karl Blette, Matt Fineout, Michael Hootman, Naomi Langer, Chris Mercier, David Reddy, Bruce Shepard, Eva Sobesky, Todd Spiegel, Kristin Woehl, Rich Barrett, Tomaso Bradshaw, David Hardie, Grzegotz Kosmal, Mehran Mashayekh, Brent Miller, Marc Salette, Rick Smith, Derek Soltes, Jeff Wauer, project team*
Executive Architect/Engineer: *IDOM—José Maria Asumendi, project director; Luis Rodriguez Llopis, project manager; César Caicoya, senior architect*
Consultants: *Carlos Iturriaga (architectural); Thomas Hut, Andy Klemmer (Solomon R. Guggenheim Foundation); Skidmore, Owings & Merrill, Chicago (structural)—Hal Iyangar, John Zils, Bob Sinn, project team; Cosentini Associates (mechanical)—Marvin Mass, Igor Bienstock, Tony Cirillo, Edward Martinez, project team; Lam Partners (lighting); Peter Muller, Inc. (curtain wall)*
Contractors: *Cimentaciones Abando (foundations); Ferrovial/Lauki/Urssa (steel, concrete structure); Constucciones y Promociones Balzola (external building); Ferrovial (site work, interiors, building systems)*



A study model's curves are traced and digitized using a Faro arm. The data is transferred into CATIA, a three-dimensional modeling system. Gehry's office pioneered CATIA's use for architecture.

Basque representatives approach Krens in February while he is attending the opening of an exhibition of the Guggenheim's collection on view in Madrid. The show is funded by a Basque bank, and Krens talks with the Basques, but he's skeptical of the group's ability to make good on an offer to fund the construction of a museum in Bilbao that would have the Guggenheim name and thus would benefit from the museum's collection, curatorial expertise, and access to traveling exhibitions.

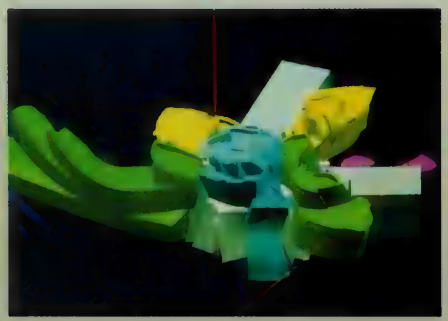
After two months of persuasion, Krens agrees to visit Bilbao. When his plane lands at the local airport on April 9, he crosses a red carpet to a waiting helicopter, which takes him to a meeting with the president of the Basque Country. He sees that the Basques are serious. After much discussion, both parties conclude they don't want to waste time in a mating dance. An agreement is made to embark on two parallel processes of discovery: a feasibility study to evaluate the project in economic, legal, cultural, and demographic terms, and an architect search to satisfy one of Krens's key stipulations—that the building be "world-class architecture." A deadline is set for December 1991. At that time, a decision will be made to proceed with the project or terminate the relationship between the Basques and the Guggenheim.

SPRING 1991 From a long list of potential architectural firms, three are chosen to participate in an invited competition: Coop Himmelblau of Vienna, Arata Isozaki & Associates of Tokyo, and Frank O. Gehry & Associates of Los Angeles. At Krens's request, Gehry had already visited Bilbao in May to tour the Alhondiga, a former warehouse selected as the tentative site. Of his initial impression of the city, the architect recalled remarks made by sculptor Richard Serra. "Years ago Serra visited Bilbao and said to me, 'You've got to go to this place. It's amazing,'" recounts Gehry. "I didn't hear about Bilbao again until eight years later, when Krens gave me 24 hours to get there." Impressed by the city's tough industrial appeal but not the site, Gehry reports that it would be difficult to build a museum without destroying the historic Alhondiga. Another potential site along the Nervión River, the central artery of the once-booming port of Bilbao, is identified. By early June, the Basque administration agrees. Site documentation and a preliminary program brief are supplied to all three architectural teams at the end of June. The competition requirements focus on content, not methods of presentation: it's a call for ideas. The contestants are given three weeks and $10,000.

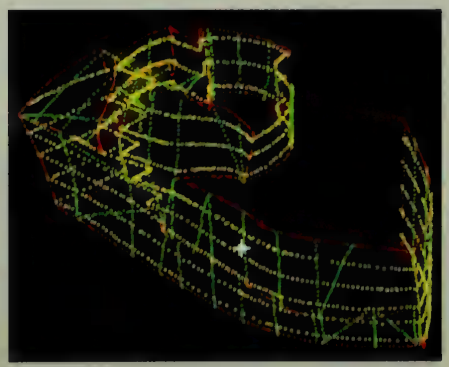
JULY 1991 On his way back to Los Angeles after the official Bilbao site tour, Gehry stops in New York City for Philip Johnson's 85th birthday party. Edwin Chan of his office meets him there with a site model and some pieces of foam representing various programmatic aspects of the project, which calls for 36,000 square meters. The architects discuss Gehry's impressions of the site—a disused former industrial shipyard along the Nervión—and review general massing strategies. They play with the model and the foam shapes, taking Polaroid photographs of different strategies. Back in Los Angeles, Gehry and his team spend the following weeks producing a conceptual model and a book that describes the principles of the project as they envision it: the site as a transition zone between downtown and the riverfront; an architectural language that makes a sculptural symbol for the city, with a blossoming flowerlike form at the center; an internal plan of galleries that is Guggenheim-like in its organization around a grand multistory central space; a long gallery for large-scale works that engage a vehicular bridge intersecting the site by both going underneath the bridge and seemingly jumping up to meet it; and a tower at the east end that serves as a marquee facing the historic city.

On July 19, after what Krens describes as "two arduous days of deliberation, a selection committee composed of Basque and

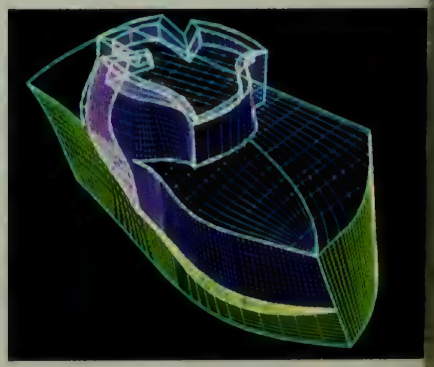
Using CATIA, Gehry's office analyzes the overall design (below). Aspects of the development of one portion of the design (right).



COMPUTER STUDY OF THE OVERALL DESIGN



A PORTION OF THE MUSEUM AFTER IT HAS BEEN DIGITIZED



A SURFACE MODEL IS CREATED IN CA

Guggenheim Foundation representatives announces Gehry as the architect of choice. "He was chosen for the strength of his vision," says Krens. What is still unclear is whether building any building at all is feasible.

In mid-September, after an intense six-week design-development period, the Guggenheim's board of trustees gives preliminary approval to draft a long-term association agreement between the Foundation and the Basque administration. The feasibility study is completed the following month, and by the December deadline a joint agreement is reached that "the place makes sense," says Juan Ignacio Vidarte, a Basque regional director of tax and finance, and that "it will cost $100 million. That is what we can afford." The agreement is ratified by the Basque government two months later.

JULY 1992 The Basque government establishes the Consorcio Guggenheim Bilbao to oversee planning and construction of the museum, and Vidarte, who has participated in the negotiations, is named director. The Basque team is put in place: Bilbao-based IDOM, an engineering firm, is named executive architect to handle governmental regulations, obtaining permits, and contractors. Gehry's office will do the working drawings. While the agreement between the Guggenheim and the Basques says that Krens oversees the design, Vidarte and his group, including Carlos Iturriaga, an independent architect hired by the Basque Country as its representative, are present for design meetings, which occur every six weeks, usually in Los Angeles. The group participates in what Gehry calls "my weird process." "It's slow, time-consuming. It's like watching paint dry." The architect-client relationship is a triangle—Gehry and his team, Krens and the Guggenheim, and Vidarte and the Basque group. While Krens says this is the sixth building project in his career, Vidarte is a first-time client. For Vidarte, however, the mission is clear: "We want the best Frank Gehry building and we want it on schedule and on budget." To accomplish this, he says, "We need to be a team. Gehry is in charge. The Foundation makes sure the program is consistent with its vision. We control the cost." Gehry nicknames Vidarte "the wall" for his stick-to-itiveness and calls Krens "the courage." Krens wants to makes sure there is no "aesthetic interference" and says he's pleased that the Basques "let Frank and me design it."

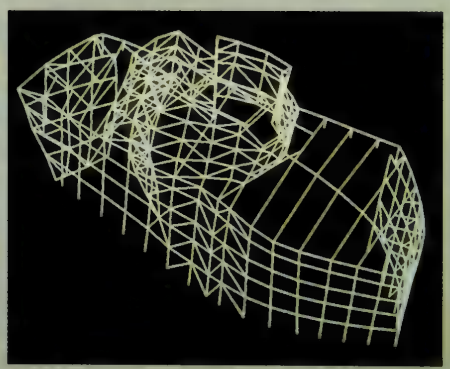
The main ideas of the competition scheme are accepted. A process of refinement and elaboration begins. Models of cardboard and wood are made, dissected, discarded, reinvigorated. CATIA, the computer modeling system, is used to explore and document forms. The curved surfaces of study models are mapped through a digitizing process. The computer mapping is then used to develop and coordinate building systems—from structural steel to exterior cladding. Through a milling machine, CATIA carves a scale model of the building forms, which is used as a comparison with the computer data or to provide dimensional control for the fabrication process.

What Krens calls the "blocky" aspect of the initial design is smoothed as the project develops. Observes Krens, "Frank's the kind of guy that when you say you don't like something, he'll gleefully rip it apart because the second time he starts from a higher plane of knowledge." For budgetary reasons, the project size is reduced from 36,000 square meters to roughly 24,000, or 257,000 sq ft, including 112,000 sq ft of gallery space. But the overall scale is nonetheless enormous: at 165 ft, the central atrium is more than one and a half times the height of Wright's Guggenheim rotunda. Krens champions the long, boat-shaped gallery underneath the bridge, which eventually grows to 450 by 80 ft. "This is Tom's vision," says Gehry. "I wouldn't have concocted a 450-ft-long gallery."

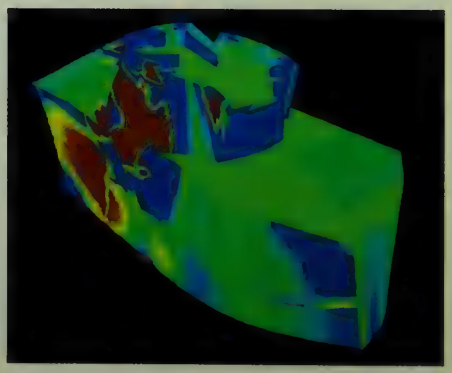
OCTOBER 1993 In Bilbao the local architectural and construction community is overwhelmed not only by the project's size but also by its complexity. "It's not buildable" is what César Caicoya, the architect hired by IDOM to help supervise the project, is told by colleagues who see the finished model of the museum. He and Vidarte, having participated in the design process with their own engineers, feel otherwise. Groundbreaking occurs on October 22, 1993. "Trust builds exponentially," says Vidarte of his confidence that the design is doable. "Gehry's team needs to see things getting done. We needed to see him work with budget and time. He gave us proof of that." The complexity of the construction task, though even more difficult than anticipated, grows into a welcome challenge. It becomes a dare to be met in the Basque Country, which has a "culture of metal" (thanks to its history of shipyards) and "contractors who are



A COMPUTER-CUT MILLED MODEL IS MADE TO VERIFY ACCURACY



A PRIMARY STRUCTURAL WIRE FRAME IS CREATED AND REFINED



A CURVATURE ANALYSIS IS USED TO STUDY SURFACES







Right: A flooring discussion with, from left to right, Juan Ignacio Vidarte, Luis Rodriguez Llopis, César Caicoya, Vano Haritunians, Edwin Chan, and Gehry. Above: Gehry and colleagues on a lower roof. Far right: The boat-shaped gallery. Opposite: Vidarte, author Karen Stein, and Gehry on a construction tour.

proud of their work," says Caicoya. To realize the design, a high level of contractor commitment is necessary.

During design, members of the architectural team—Gehry, project designer Chan, project principal Randy Jefferson, AIA, project manager Vano Haritunians, AIA, and project architect Douglas Hanson, AIA—shuttle back and forth between Los Angeles and Bilbao. When construction is fully under way, it's generally Haritunians making the trip, at least once a month. "It's a fast-tracked project," he says, "which means we start the foundations without the exterior package being complete. We are still massaging the project while we are drilling the piles." The first 12 months are spent sorting out site issues: demolition and permits. When Gehry's office completes the working drawings, there are 565.

Spanish limestone is chosen for some of the exterior surfaces, but the metal to clad the more sculptural forms is a matter of considerable debate. An initial idea is to use sandblasted stainless steel, which is the cladding intended for Gehry's Frederick R. Weisman Museum in Minneapolis. The Weisman's cladding is ultimately changed to a satin-finished stainless steel, which is deemed inappropriate for the much larger Bilbao project because of its high degree of reflectivity. "It would be a psychedelic mirror," says Chan of the anticipated effect. Gehry considers lead-coated copper, which he used on his 1992 Center for the Visual Arts in Toledo, but new environmental concerns make it inappropriate. Chan says a piece of titanium in the office's sample pile catches the team's eye, and it is mounted in the office parking lot to see how it responds to light. It becomes the cladding of choice even thought its reputation as an expensive material makes it seem an unreachable ideal. But because of its ligh weight, titanium continues to be considered. When the cost of structure required to support treated stainless steel and a titanium skin are com pared on an assembly versus assembly basis, titanium's cost no longe seems prohibitive. And then economic forces come into play with all th drama and intrigue of a spy novel: the Russians dump large quantities o titanium on the market and for a brief period the price drops. When th cladding for 28 possible samples (mostly stainless steel in a variety of fin ishes) is bid, titanium, supplied by a Pittsburgh manufacturer, is suddenl available at a cost equivalent to stainless steel, reports Vidarte.

OCTOBER 1994

One year into constructio there is "unity among all th team members," says Vidarte. Gehry agrees, commenting later in retro spect that "it's obvious that the Basques fell in love with the building They took care of it through the construction process." Says Vidarte, "Yo have to work together a long time, suffer together a long time to realiz you need each other." Gehry, a fan of unfinished buildings, makes fre quent site visits, calling Vidarte and the IDOM team "my Basque family

In September 1996 the shell is virtually complete. Gehr Jefferson, Haritunians, and Chan are back in Bilbao to check on progres and to meet with Vidarte and his colleagues. Walking through the empt site on a weekend when workers are there only to turn lights on an remove debris for Gehry to check details in question—the choice of woo for the gallery floors, a paint color for the administration wing—th

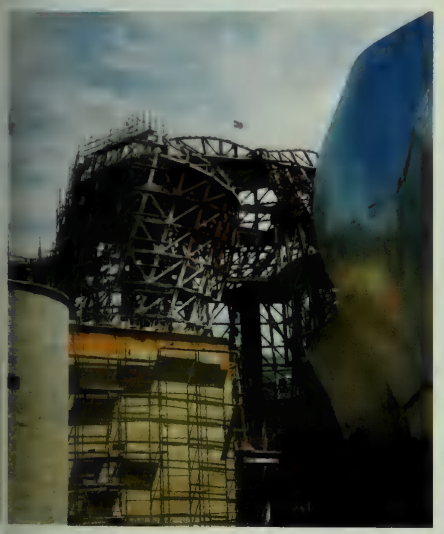


architect is at turns ebullient and lost in thought. He stands in the atrium facing the river, examining a curved wall of glass that arches through the space. "My curve, my curve," he coos, pointing animatedly at the sinuous edge. "I drew that," he says more than once, disbelieving and proud that a once small sketch is now some 70 ft high.

After the building tour, most of the group adjourns to a café across the river to watch the sun set over the building. The river is still and it acts as a mirror—the building is everywhere. The titanium absorbs light, saving it for darkness, offering a brief rosy glow before blackness. Soon Chan rejoins the group. He's been on the roof and he is exhilarated by the experience: the building's shapes up close, the panoramic city views. The enthusiasm is infectious, and the next day the group repeats the climb up scaffolding to the top of the boat-shaped gallery. Vidarte, Jefferson, Haritunians, and Chan, among others, stroll the ski-jump-like surfaces, in seeming defiance of gravity, logic, safety. The joy is palpable. From this vantage point one can see the titanium on petals of the central "flower." The titanium has been applied like wallpaper in panels of approximately 2 by 3 ft, using a repetitive module to make the skin affordable. The panels, .38 millimeters thick, hug the five-layer substructure so closely that they make the forms look like lungs filled with air. Soon the roof will be completely covered in titanium and inaccessible. Gehry stays below, touring the galleries, looking and thinking.

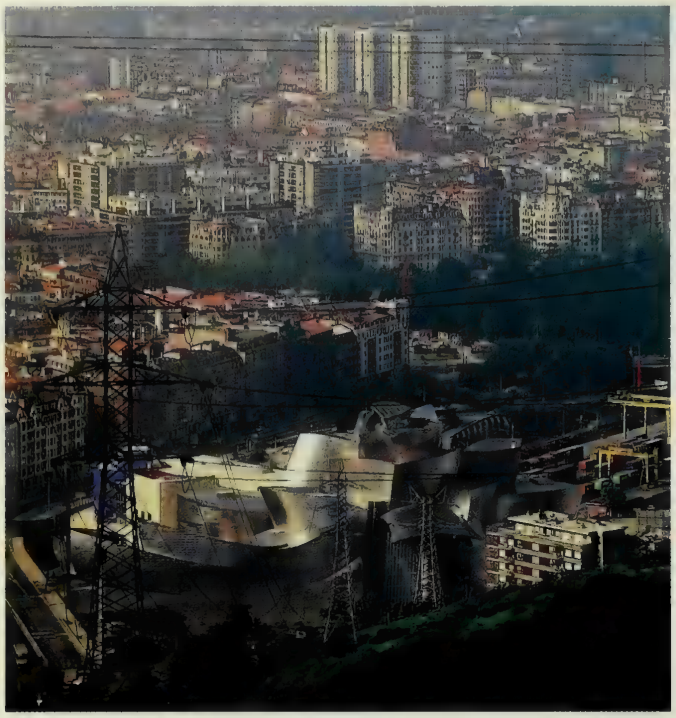
Did this project seem like a fantasy when it started? Not long after he was awarded the commission, Gehry told Krens in a letter, "To be at the bend of a working river intersected by a large bridge and connecting the urban fabric of a fairly dense city to the river's edge with a place for modern art is my idea of heaven." But the architect claims that the project was always real in his mind. "I just started working and did it," he says of his suspension of disbelief. "I don't second-guess projects. If it happens, it happens. Because if I start to worry about that, I won't work on it. I've done that before, and when there is any slight inkling that it may not be real, I quit. Emotionally I quit, and then they [the client, his colleagues] have a hard time getting me back into it."

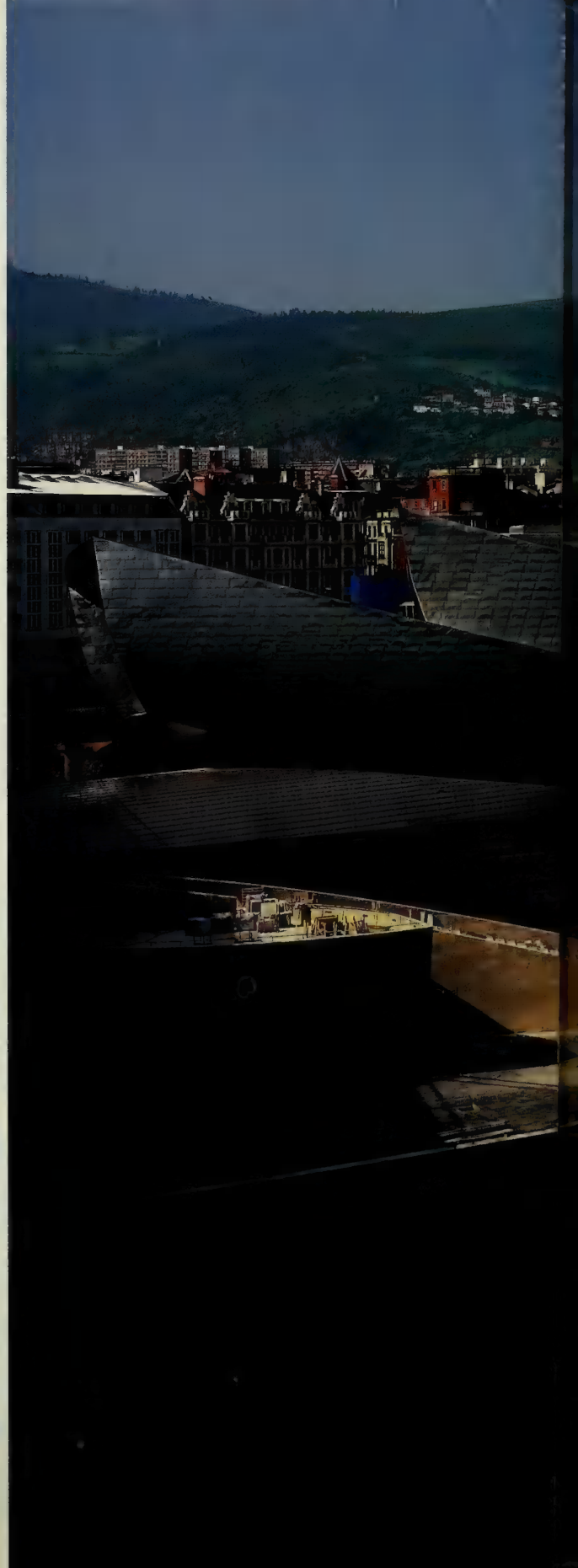
JUNE 1997 It's four months before the opening and Gehry is leading another tour through the almost-finished museum. While the public dedication has been postponed from summer to fall, Basque representatives are satisfied with the progress and adherence to the $100 million budget. Gehry has been giving many tours in the past months, and if the flock of curious to an unfinished building is any indication, the museum may well draw the projected 400,000 people per year. This particular tour includes Gehry's first European client, Vitra's Rolf Fehlbaum, the furniture manufacturer who has his own Gehry-designed museum; members of Gehry's family; and architects, colleagues, and friends from all over. *(text continues)*



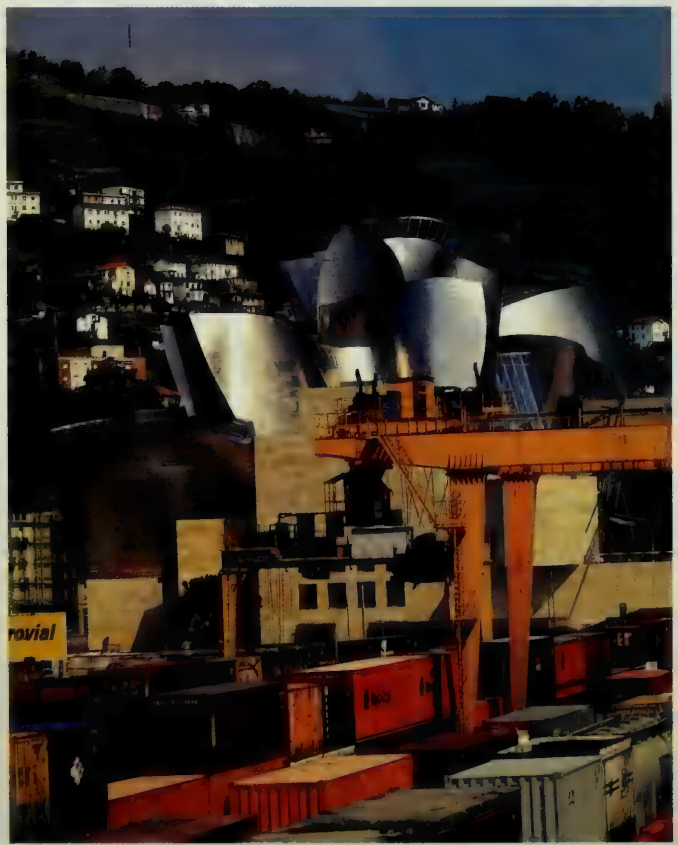


Titanium panels measuring .65 by 1.15 meters (roughly 2 by 3 ft) and .38 millimeters thick are applied like wallpaper to the steel structure (above). The building continues underneath the Puente de las Salve (right). A ramped promenade follows the Nervión River.



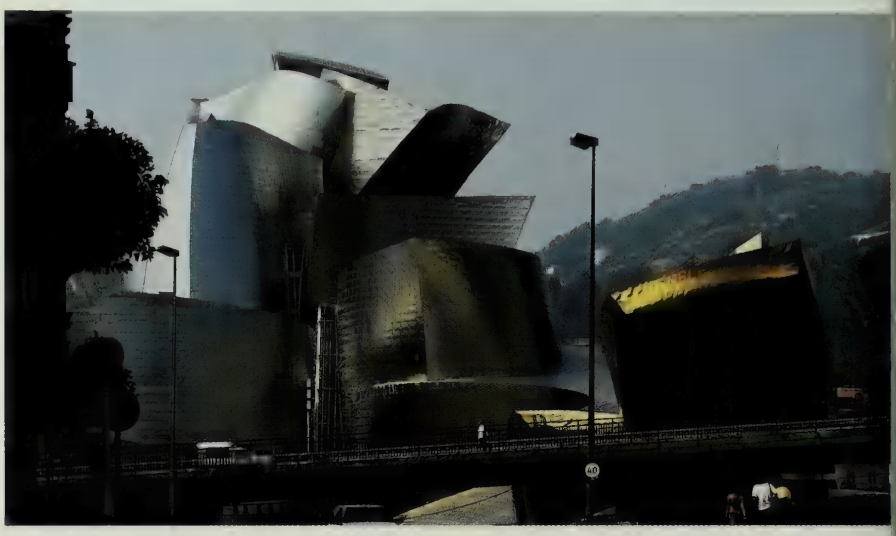


Occupying a site that had most recently contained dock facilities (below) and warehouses, the museum spreads out along the Nervión River, which was once a bustling port (right). At the east end of the site, a giant boat-shaped gallery passes beneath the Puente de la Salve, the major traffic artery of Bilbao (above).

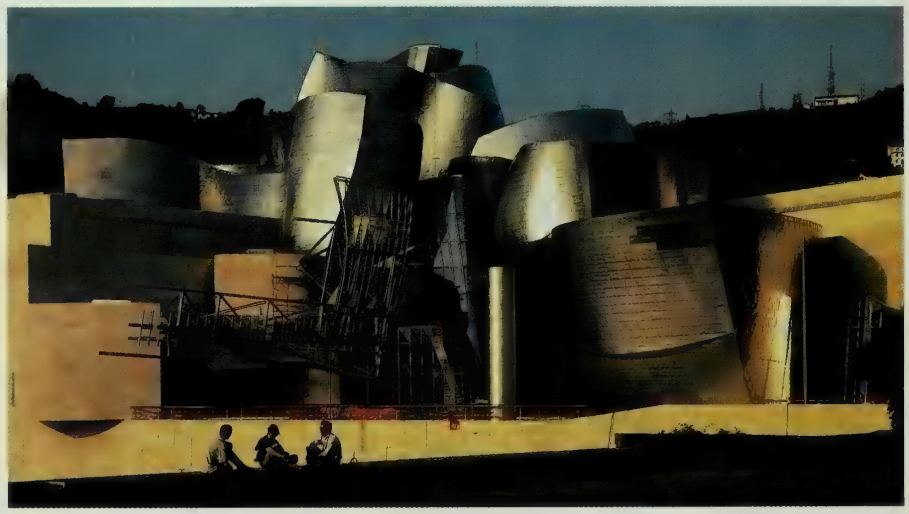


PHOTOGRAPHY THESE PAGES AND FOLLOWING: © JEFF GOLDBERG/ESTO





Below: The sloped path to the entrance continues the axis of a main city street.



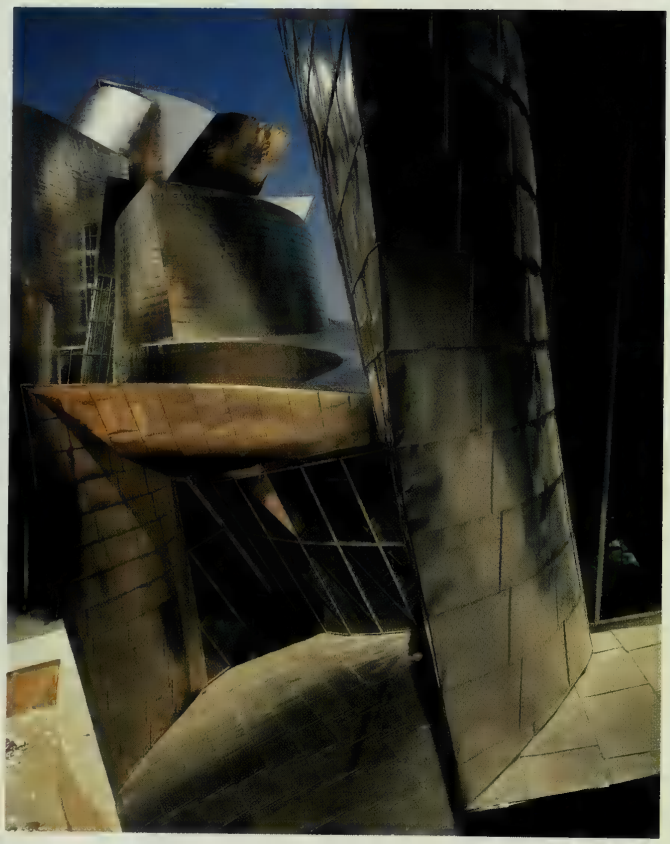
Above: From the east, the giant gallery appears almost separate from the central mass of the museum.

Below: The museum's riverfront promenade extends to the unfinished tower to the east



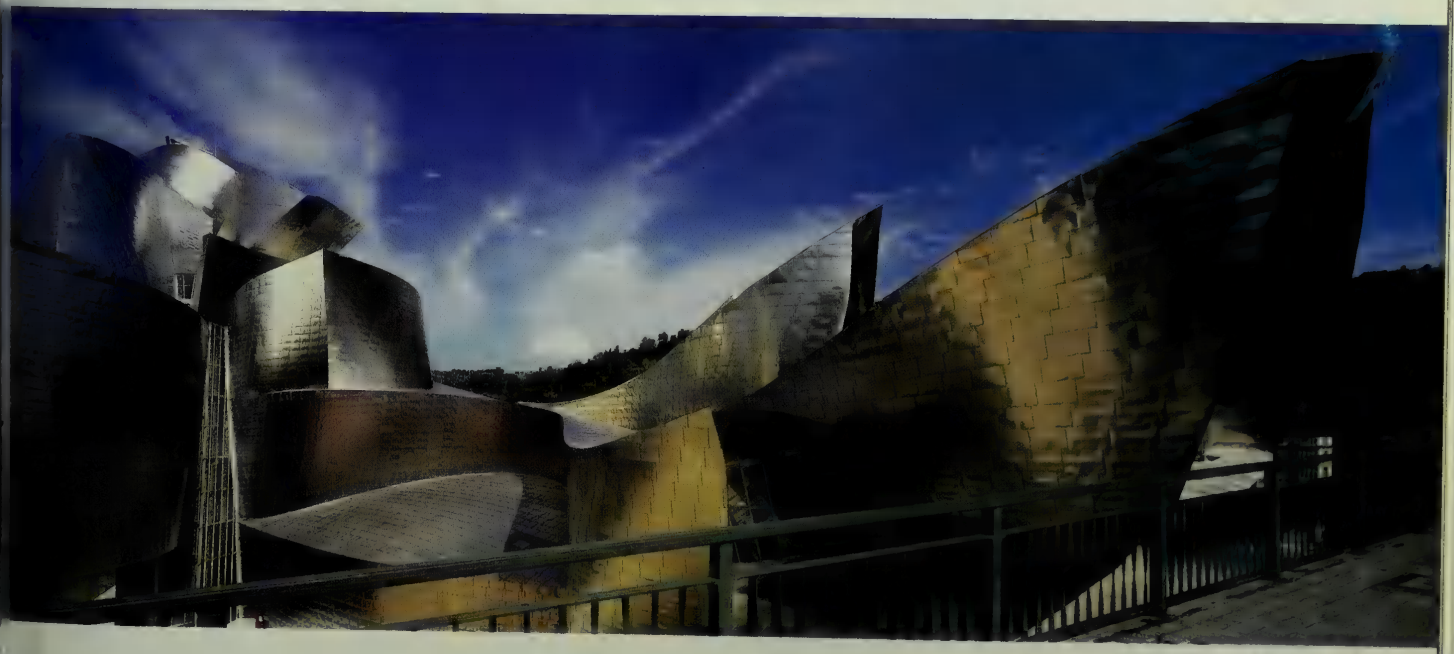
Below: The central atrium—what Gehry calls "the flower"—overlooks the river.





Above: Pedestrians on the bridge can see the titanium up close.

Below: The giant gallery rises up to meet the bridge.



1. *Plaza/promenade*
2. *Foyer/public entrance*
3. *Lobby*
4. *Atrium*
5. *Auditorium*
6. *Retail*
7. *Gallery*
8. *Restaurant/café*
9. *Storage*
10. *Mechanical*
11. *Water garden*
12. *Loading dock*
13. *Tower*
14. *Staff entrance*
15. *Staff offices*
16. *Terrace*
17. *Open*

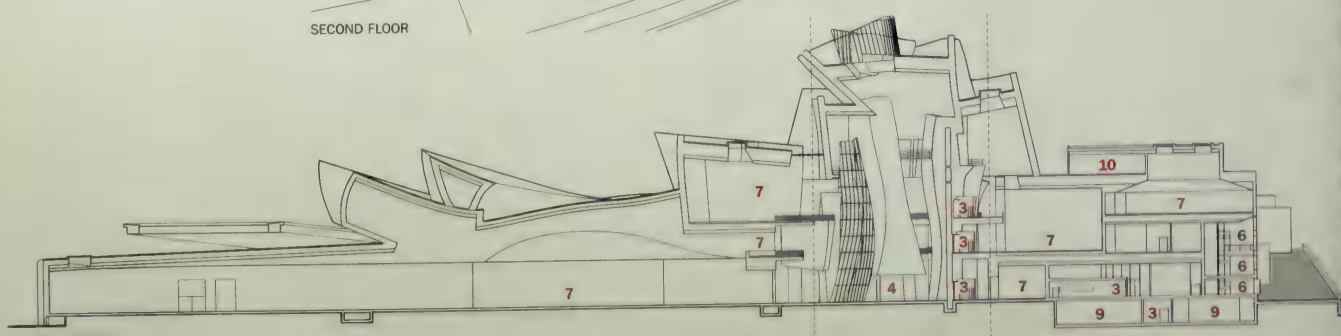


FIRST FLOOR

Gehry designed two types of galleries (labeled 7 in plans, right): more traditional orthogonal spaces for permanent collection installations, and curved rooms with dramatic skylights as venues for temporary installations. Old and new Bilbao meet in a collage of limestone and titanium (opposite).



SECOND FLOOR



BUILDING SECTION





Ellsworth Kelly is there, too, hoping to locate a spot for a commissioned work. He admires the place reserved for Pablo Picasso's 1937 painting *Guernica*, which the museum hopes to get on loan from Madrid.

Richard Serra has recently installed his new piece in the big gallery. The undulating steel sculpture is 13 ft 4 in. high and 105 ft long and weighs 180 tons, but in the space it looks surprisingly diminutive. Gehry wants to erect two walls flanking the front of it to compress views and provide some of the tension that Serra's sculpture thrives on, but Krens vetoes the idea. He wants to fill the space with other large sculptures or paintings—such as works by Carl Andre or Andy Warhol—so that the tension will come from overlapping works of art. Gehry, whose history of collaborating with artists is what led him to designing museums, wonders why on this issue he is overruled. Vidarte is sympathetic to Gehry's opinion, but it's a curatorial decision: it's Krens's turf. For his part, Krens is inured to criticism of his curatorial choices. His entrepreneurial approach to the Guggenheim has been likened to a cultural pyramid scheme. But even the criticism falls within his larger agenda. "Controversy is part of my strategic plan," he says.

In addition to the giant gallery, there are 18 other galleries, which fall into two general types. Gehry distinguishes them as "galleries for dead artists, which have classical [square or rectangular] shapes, and galleries for living artists, which have funny shapes, because they can fight back." The galleries for temporary installations are, he says, "an invitation to confrontation." A third of the art to be installed will come from the New York Guggenheim, a third will come from other European institutions on temporary loan, and a third will be "self-generated," with an emphasis on Basque culture, explains Krens.

Many of the galleries receive natural light through skylights; supplemental light is provided by wall-washer and mono-point fixtures. In some galleries, the lighting system is mounted on catwalks that hang from the ceiling. The goal in all of the galleries is an even illumination of 10 to 20 footcandles at eye level. Vidarte, who has been in the building nearly every day since construction began, says of the play between Gehry's sculptural forms and the Basque sunlight: "Every time you go, you have a good feeling. What could be more rewarding?"

The crowd wandering through the museum also includes architect Alvaro Siza, who has traveled from Porto, Portugal, to see the building he has heard so much about. When asked his reaction, he says softly, carefully, "It's amazing." After a long pause, he ponders the two questions that other architects on the tour are asking themselves and each other, the questions that Thom Mayne, who is also present, posed out loud more than once: "Will I ever design something this good?" and "Will I ever find such a client?" Offers Siza by way of answer: "Maybe you can only have this in Spain. The Spanish ask for things. They have a big wish for *new* things." ■





The central atrium (opposite and above) is more than one and a half times as high as Wright's Guggenheim rotunda. Some galleries have skylights (below). Catwalks are for access to lighting.

Manufacturers' Sources

Laminated-glass curtain wall and entrances: *Umaran*

Titanium-metal cladding: *Timet (Pittsburgh); fabricated by Permasteelisa (Italy)*

Waterproofing membrane: *W. R. Grace Construction Products (Ice and Water Shield)*

Fire-control doors: *Won-Door Corp.*

Interior light fixtures: *ERCO, Lledo*

Lighting controls: *Lutron Electronics*



Passengers at the new Washington National Airport check baggage at curbside beneath shimmering steel-and-glass canopies.

Cesar Pelli's new passenger terminal at NATIONAL AIRPORT in Washington, D.C., eases the life of the world-weary traveler.



by Charles Linn, AIA

To attribute any sort of stylistic label or historical influence to the recently completed new terminal at National Airport is to misunderstand the way Cesar Pelli, FAIA, designs. "To me," Pelli says, "architecture and forms need to follow convictions. Convictions cannot be convictions about forms, because those are not convictions, those are preferences. Convictions need to be about principles."

The convictions that drove Pelli in the case of National were objectives set by the Metropolitan Washington Airports Authority. The four basic goals were passenger convenience, functional efficiency, budget, and aesthetics. "Aesthetics and budget were really on an equal level," says the Airports Authority's design project manager, Dan Feil, FAIA. "It was a question of whether we could get the highest possible aesthetics within a given budget, not whether one was more important than the other."

Pelli believes that part of what favored the project was the purposeful, measured way the authority supported program analysis for the project before design began. The design team spent two years visiting airports, looking at every functional component at each one, and talking to architects, airport administrators, and airline representatives to discover the best solutions for such mundane chores as passenger drop-off, which, when handled badly, are the bane of every air traveler. "For example, we did lots of solutions for how curbside baggage check-in should be organized," Pelli says, "without ever knowing what the building was going to look like. We wanted all the problems to be known and understood before we began. The Airports Authority would not authorize one penny for design until we were finished with this work."

Pelli and his team also had to work within stringent dimensional restrictions that determined the height, depth, and location of the building, as well as influencing its overall footprint. "The most difficult thing we encountered was the dimensions. We were boxed in from all sides. We could not move the piers [passageways to airplane gates] because the space between them is set by the minimum distance an airplane needs to maneuver, and they barely fit that.

"On the other side, the distance between the Metro rapid-transit lines and the curbside passenger drop-off traffic lanes was set because it was close to the minimum. The heights of the terminal and concourses were set by the 'sky planes,' the sightlines required by the air traffic controllers. The heights of the piers were so close to the edges of these imaginary geometric planes they actually determined the shape of the pier roofs. Even the grade level was set. I wanted to go several inches deeper and then I realized we would be under the level of the flood plane." Even the location of the control tower was intently scrutinized by the FAA, who evaluated some 21 different locations before settling on one at the north end of the new terminal.

Three years after beginning to study the airport design, Pelli presented four schemes to the airports authority. The first was an updated

Project: *New Terminal, Washington National Airport, Washington, D.C.*
Design Architect: *Cesar Pelli & Associates—Cesar Pelli, FAIA, design principal; Fred Clarke, FAIA, project principal; Mark Shoemaker, AIA, design team leader; Phillip Bernstein, AIA, project manager; Anthony Markese, Barbara Endres, Sharon McGinnis DaSilva, Philip Koether, Isaac Campbell, Michael Green, Julann Meyers, Philip Nelson, David Toti, Jennifer Carpenter, Sunny Evangelista Carroll, Alison Horne, Yann Poisson, Bernard Proeschl, Jeanne Smith, Lisa Winklemann, James Winkler, Dewitt Zuse, designers; Jeffrey Paine, AIA, garage design project manager; Axel Zemborain, design team leader*
Architect of Record: *Leo A. Daly*
Associate Architect: *Pierce Goodwin Alexander & Linville (new terminal); Sulton Campbell Britt & Owens (south terminal rehabilitation)*
Engineers: *Parsons Management Consultants (project management); CBM Engineers; (structural) Urban Engineering (civil); Syska & Hennessy (mechanical/electrical)*
Consultants: *Balmori Associates (landscape); Horton•Lees Lighting Design (lighting); A. Morton Thomas & Associates (surveying); Apple Designs (graphics); Siemens Nixdorf (airline systems); Project for Public Places (signage); Coffeen Fricke & Associates (acoustics); Breier Neidle Patrone (baggage handling); Gage Babcock & Associates (life safety); Hanscomb Associates (cost estimating)*
General Contractor: *Morganti McGaughan & Dick Enterprises*

version of the original airport, with a huge curving glass wall that would overlook the Potomac. The second scheme was a large shed, a variation on Pelli's entry for the Kansai airport competition, in Osaka, Japan, with the concourse split into two parts connected by the Metro. The third scheme was to divide the concourse using a series of small modular structural bays and to fill the hall with colors.

"In doing the three schemes," Pelli says, "I started to realize that I could combine their best ideas into a fourth scheme." This scheme had the large windows facing the Potomac, but the concourse was not curved in plan; it had the modular structural system, but the modules became much larger—45 by 45 ft—and were combined with a split level, also used in the existing terminal (Terminal A in plan). The columns rested at the edge of the split level, and the pedestrian walkways were unobstructed. This is the scheme that the board of directors finally selected.

"That scheme was a distillation of thoughts," says Pelli. "By the time we presented it, we had been working three years. It was a full understanding of the problem, which is the way I like to work. I like to make myself one with the problem, and the problem grows from me as if it was growing from the site. I don't believe that I have the right to impose forms on a place, but if one understands the forces inherent there, they can bloom beautifully."

The layout of the airport addition is simplicity itself. The footprint is in the shape of a capital E, with the terminal forming the vertical stroke of the letter and the three piers forming the horizontal strokes. At the bottom of the E's vertical stroke, a concourse connects the new terminal with the existing terminal, which is undergoing renovation.

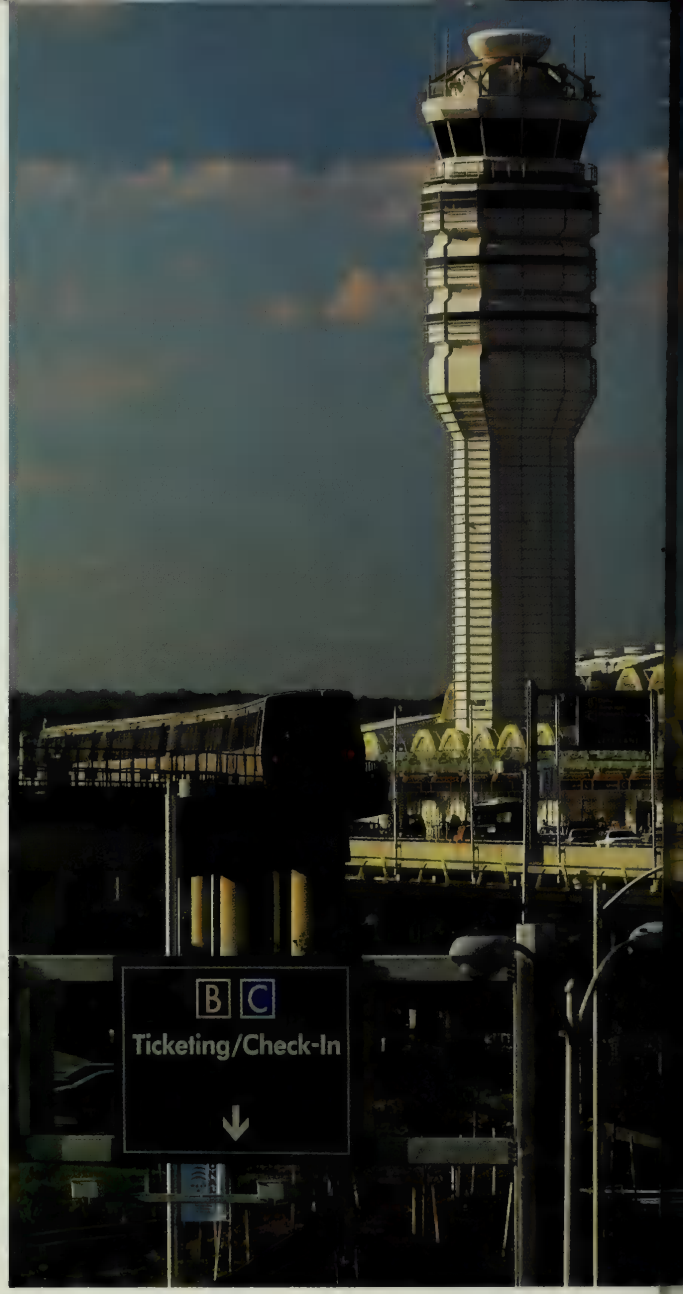
Drivers may arrive from the Washington metropolitan area via several different highways, and either park their cars or drop passengers off at curbside. Other passengers arrive on the Metro and cross to the terminal on a pedestrian bridge. Once inside, on the third level, passengers who need tickets proceed to the ticket counters.

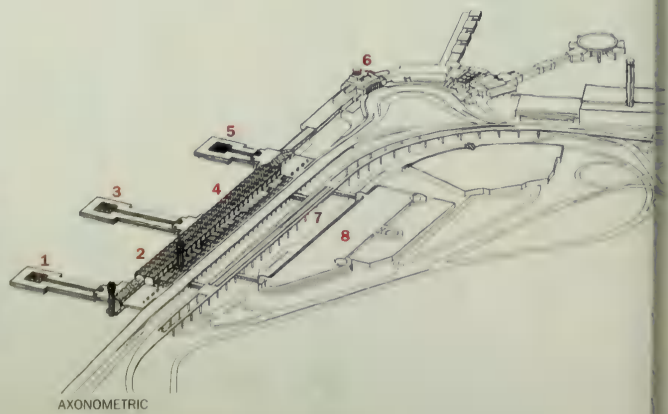
The ticket counters are located inside the terminal's curbside wall, rather than as islands in the middle of the terminal, providing a magnificent view of the planes and the river beyond. "We made a huge effort to accomplish this," says Pelli, "because most airports have no views to the outside. This resulted in a disagreement with the airlines, because they want you to see their names behind the ticket counters as soon as you enter." Pelli and Feil took on the airlines in order to preserve the building's architectural concept. "Now when you come in," says Feil, "you have a stunning view of Washington and the Potomac." Only when passengers turn around do they see the ticket counters.

From the third level, which overlooks the concourse level, passengers use one of 32 elevators or 26 escalators to descend to the concourse, through security, and to the gates.

The ticketing and concourse levels are covered by modular cross vaults constructed of steel and painted bright yellow. Each vault is enclosed by a stainless-steel roof and topped by an 18-ft-diameter oculus. The arched segments that connect to form the vaults are trusses with curved top and bottom chords, and they create the effect of two side-by-side allées of trees forming a tall canopy over the travelers. The steel structure was built of standard sections and plates, welded together for economy and to speed construction. "There was nothing custom-made about it," says Pelli. "It's just the way it came from the shop. It's a very straightforward approach. If you can achieve similar facades with less money and less effort, there is a greater level of pleasure which is not aesthetic in itself but contributes to the level of the building's aesthetics.

The 45-by-45-ft structural vaults and the one-and-a-half-acre glass curtain wall that encloses the east side of the *(text continues)*

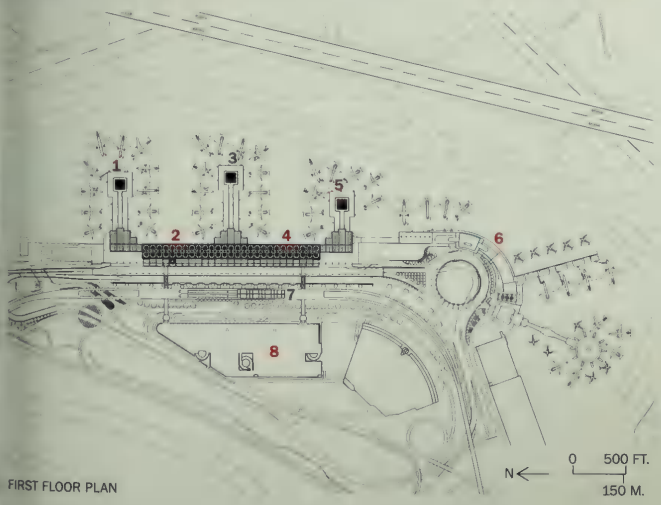




AXONOMETRIC

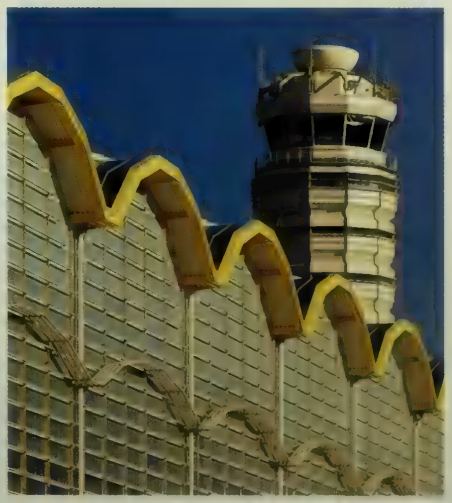
One of architect Cesar Pelli's challenges was accommodating Metro rail and automobile traffic. About 60 percent of passengers flying from the airport are dropped off at the curb.



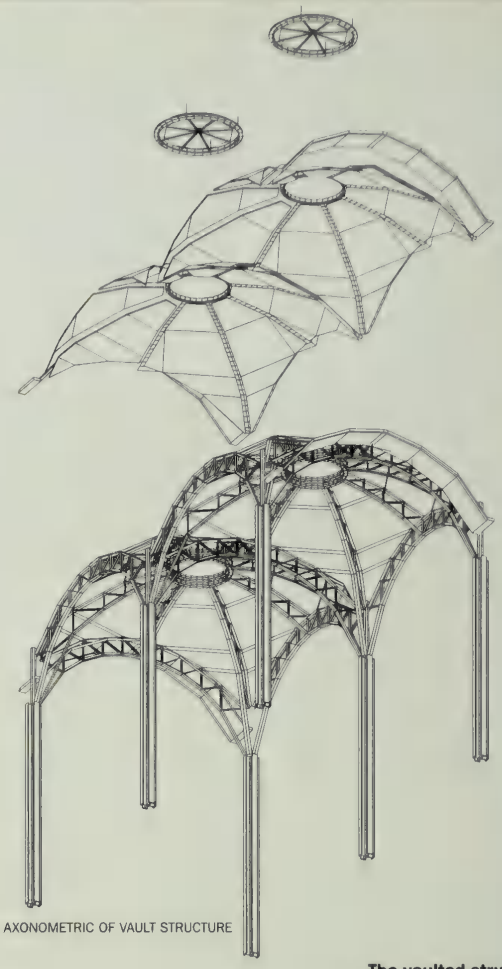


FIRST FLOOR PLAN

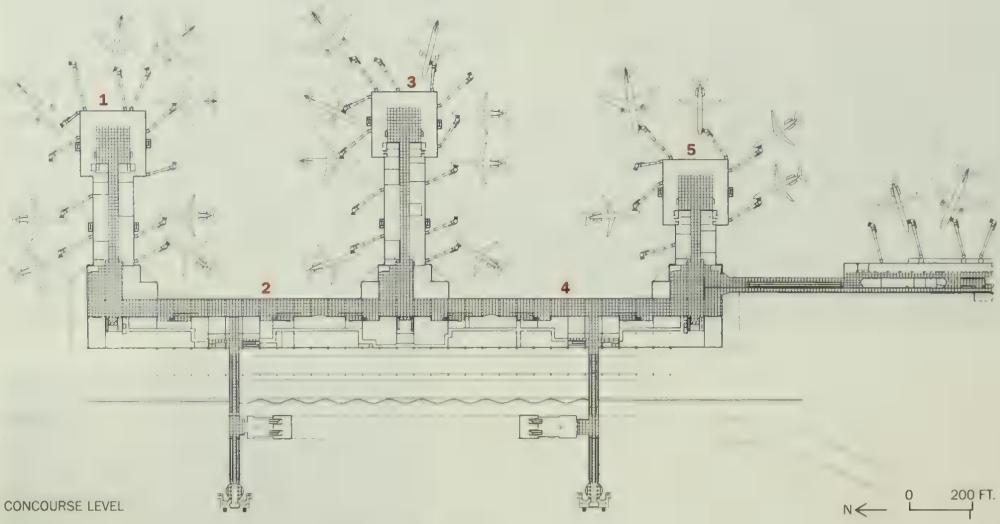
1. *North pier*
2. *Terminal C*
3. *Center pier*
4. *Terminal B*
5. *South pier*
6. *Terminal A (original terminal)*
7. *Metro station*
8. *Parking garage*







AXONOMETRIC OF VAULT STRUCTURE



CONCOURSE LEVEL



SECTION THROUGH CONCOURSES

The vaulted structure that covers the ticketing and concourse levels is built of standard steel sections and plates. Prefabricated, each module took about three hours to erect.

1. *North pier*
2. *Concourse, Terminal C*
3. *Center pier*
4. *Concourse, Terminal B*
5. *South pier*
6. *Ticketing level*
7. *Concourse level*
8. *Baggage claim*
9. *Passenger drop-off*
10. *Passenger pick-up*
11. *Metro station*


Restrooms
Ticketing



William Jacklin's mural (left) is hung in the Metro bridge well. Medallions by Michele Oka Doner (below left), Valerie Jaudon (below right), and Joyce Scott (bottom) appear on the concourse floor.

The architectural enhancement program at National Airport's new terminal includes the work of 30 nationally known contemporary artists, whose designs have been presented as mosaics, paintings, bronze and terrazzo, hammered metal, and art glass. From the very beginning, the work of these artists was planned as an integral part of the architecture of the terminal. This is a reflection of Cesar Pelli's belief that art and architecture are allied arts, and that to decorate a building with art once it has been completed is to continue a traditional split between artists and architects.

"With all of the negative publicity surrounding publicly funded art in recent years, there would be no worse place for an arts program to go wrong than in a public building here in Washington, D.C.," says Dan Feil, the Metropolitan Washington Airports Authority's terminal design project manager. To avoid problems, he and Pelli took extraordinary precautions in creating National Airport's arts program and in distinguishing it from other public arts programs.

First, the program was named the "architectural enhancement program" so there would be no confusion with the "one percent for art" programs commonly associated with public projects. The architectural enhancements were funded through the construction budget, and Pelli's office assumed all responsibility for selecting and supervising the artists and seeing that they fulfilled their contracts.

Feil researched arts programs to see why they had run into problems in the past. Often, artists did not have the technical expertise to execute their work in the required medium or to furnish work that would withstand the rigors of public display. Sometimes artists could not keep their designs within budget.



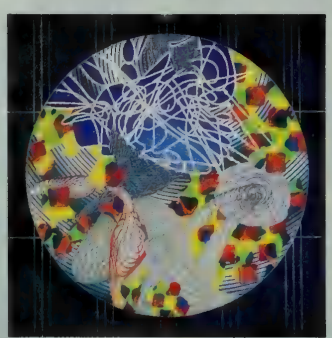


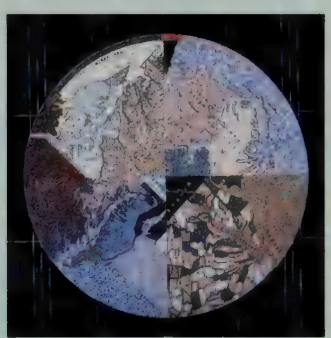


To avoid this situation at National, artists working in media unfamiliar to them were teamed with artisan collaborators who were used to dealing with architectural materials. This ensured that the work would be done on budget, that it could be cleaned, that it would be durable and safe, and that it could be installed by a subcontractor.

The artists were paid in two stages: when the concept was presented, and when the finished design was presented. "This avoided the problem of having Stalin's head suddenly showing up somewhere," says Pelli, laughing.

Feil and Pelli are often asked why they did not use a committee to select the artists. "Many artists are uncomfortable with selection committees," Feil responds. "They see them as unwilling to choose anything but 'safe' art. Pelli was able to get some of the best artists in the country because they knew he would accept art that wasn't necessarily 'safe.'" Pelli didn't intend that every piece of art would be liked by everybody. But in years to come National Airport's architectural enhancement program will serve as a time capsule of the state of contemporary American art in the mid-1990s, just as public art produced for Rockefeller Center captured the state of painting and sculpture in the 1930s.





Floor medallions by Frank Stella (above left) and Joyce Kozloff (above right) are installed with eight other medallions on the concourse level. A mural by David Row (right) hangs in the Metro bridge well.



concourse are the primary elements of Pelli's attempt to establish a sense of scale and orientation for passengers. There is no mistaking where the planes are: they are beyond the glass. "I was trying in my design to answer questions that I have had about many airports. For example, why must there be disorientation of the passengers? In many airports when you leave the plane, you go left, right, left again. After a short while you don't know where you are. That adds to anxiety and unpleasant feelings."

Pelli has also attempted to raise travelers' spirits by using bright yellow paint on the structural system, brushed stainless steel on the roof and trim, and extensive daylighting throughout the building. The airport's architectural enhancement program (see sidebar, opposite) provides an array of captivating mosaics on the concourse floors, as well as art-glass friezes, paintings, and sculpture. "I find most airports are painted gray," Pelli says. "They may be very nicely composed shades of gray, but they are all gray. Even though they may be airy, they lack warmth. I asked, 'How can one make something that will be airy and lovely and heartwarming?' Then this color scheme fell into place very quickly."

National Airport's main concourse includes 38 stores and 22 restaurants, leading some critics to say that the building is more like a shopping mall than an airport. But Feil argues that retail brings excitement and energy into the terminal. "Why should it be pure architectural form and nothing else?" he says. Design control zones prevent overzealous retailers from projecting signage and displays into the concourse. Several retailers that have never had a store in an airport before—including Victoria's Secret, National Geographic, and Waldenbooks—were impressed enough to lease space here. Other critics have said that the Airports Authority went overboard in leasing retail space in order to make the airport pay for itself quickly. Feil says, however, that retail provides only 5 to 10 percent of the airport's income (landing fees provide approximately 72 percent). "The retail is really there to add to the travelers' convenience," he adds.

And passenger convenience was, after all, the foundation of Pelli's mandate at National. It is also a fact that the Airports Authority did not stop with the building in accommodating users. Other services and features—such as two customer service centers equipped with ATMs, faxes, copiers, computer printers, and other business-travel amenities; two staffed information counters; improved accessibility for disabled users; and a well thought-out system of informational video monitors and signage—greatly enhance the airport. This focus on convenience can diminish the anxieties of travel to a point where the colors, public art, and views of the Potomac at National Airport may make the often excruciating work of air travel enjoyable. ■

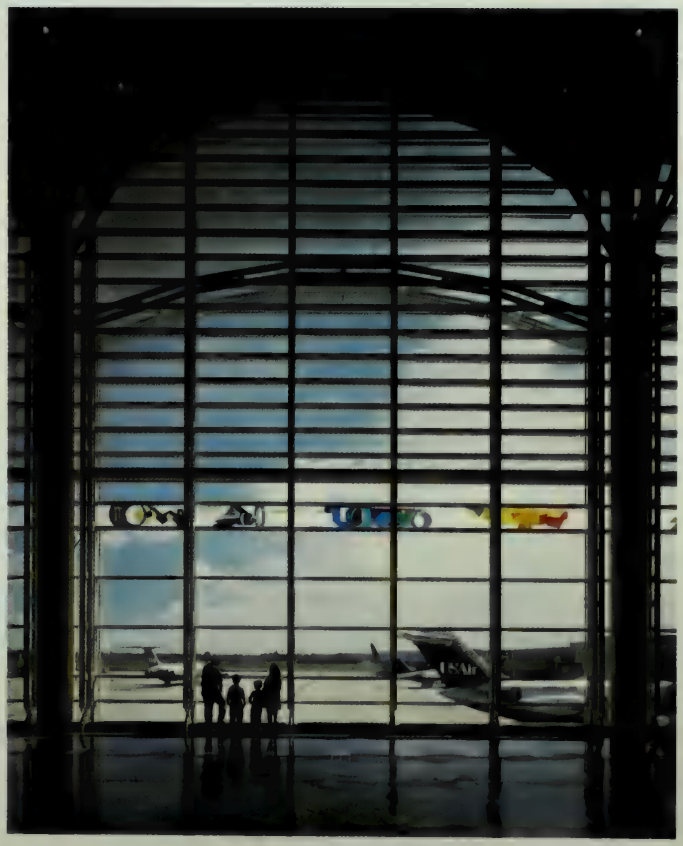
Manufacturers' Sources

Metal curtain wall: *Harmon Contract, Midwest Curtainwalls*
Insulated and decorative glazing: *Viricon*
Stainless-steel roofing: *Overly*
Skylights: *Metoe*
Stainless-steel doors: *Stanley*
Acoustical tile: *Armstrong*
Perforated-metal acoustical panels: *Environmental Interiors*
Exposed steel: *Ameron*
Steel frame: *Cives Steel Co.*
Terrazzo tile: *Wausau Tile*
Carpet: *Prince Street Technologies*
High-impact wall panels: *C/S Group (Acrovyn)*
Metal panels in concourse: *Custom Enclosures, Baker Metals*
Epoxy-based terrazzo: *David Allen*
Elevators, escalators: *Schindler*
Contract furniture: *Herman Miller, Knoll, Johnson, Tables & Surfaces*
Custom lighting: *Forum*
Custom stainless-steel casework: *Environmental Interiors*

The height of the pier roofs (right) was determined by air-traffic controllers' sightlines. Artwork by Kent Bloomer (below) and Al Held (bottom) are part of the architectural enhancement program.



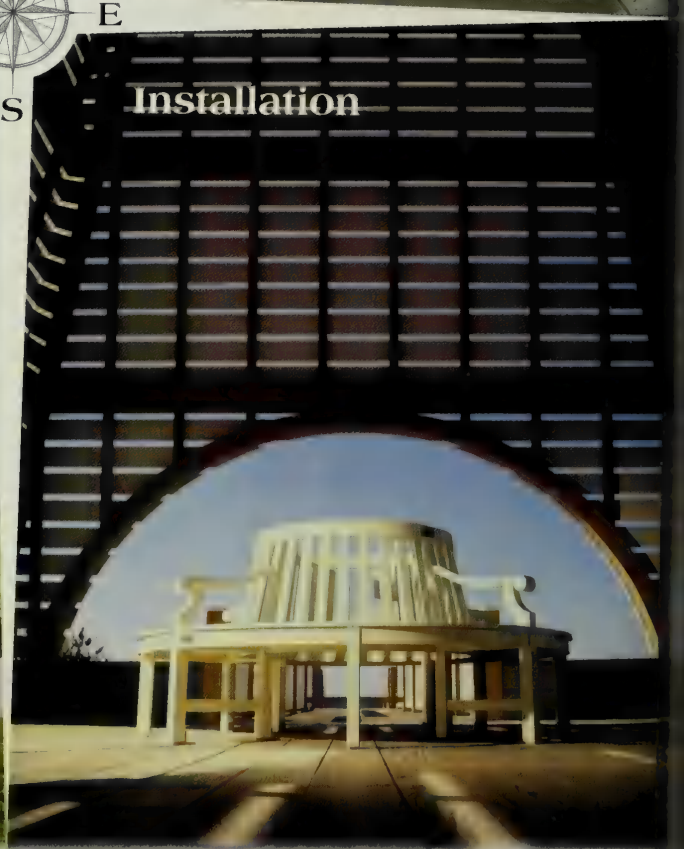












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C/S Expansion Joints at

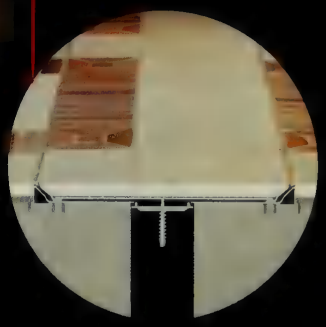


The John E. Anderson School of Management is another outstanding example of how the C/S Group answered a challenging expansion joint problem.

The fire-rated seismic joints in this project required 8 and 12 inches of movement with lateral shear capability. The architect's design called for covers to be concealed by stone pavers in the courtyards and decks, and by brick and stone veneers in the walls. The joints also had to be totally invisible and all caulk lines had to align.

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The UCLA Anderson School

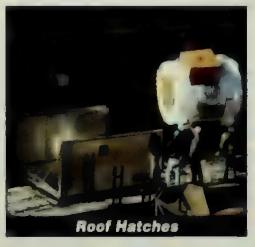
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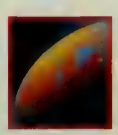

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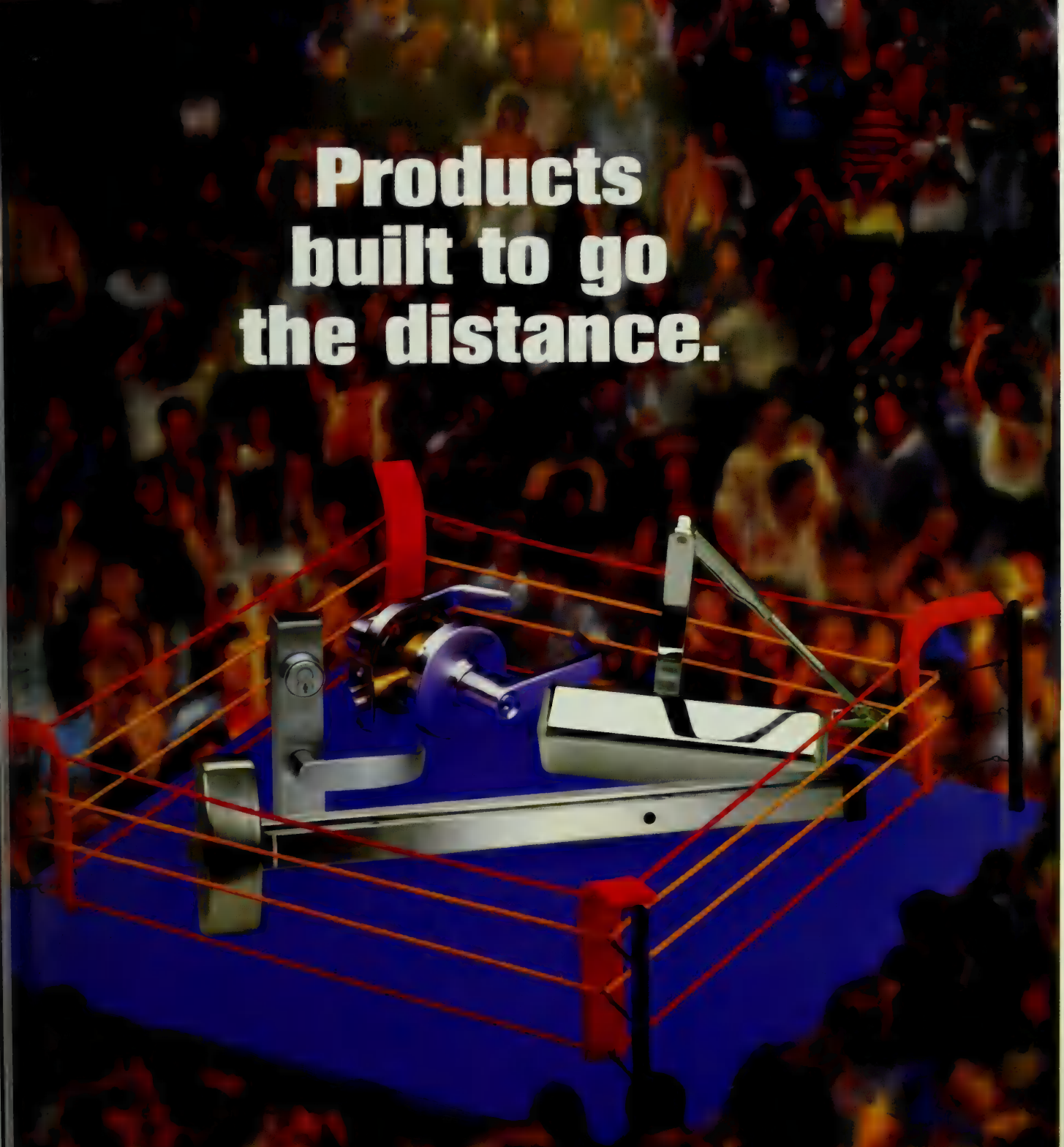
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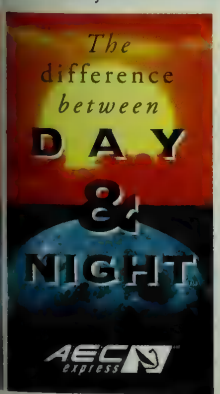
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CIRCLE #1 ON INQUIRY CARD

SCHOOLS

No Cure-Alls for K–12

WILL PRIVATIZATION, COMMUNITY FOCUS, OR NEW TECHNOLOGY FIX OUR SCHOOLS? PROBABLY NOT, SAYS THOMAS FISHER, AT LEAST NOT BY THEMSELVES.

by Thomas Fisher



1

Chicago, Illinois

Designed by Ross Barney + Jankowski, Little Village Academy is a bridge between the Hispanic culture of its students and an Anglo-American society.



2

North Fort Myers, Florida

Through addition, subtraction, and renovation, Perkins & Will transformed an existing high school and gave it a focus it never had.



3

Tavernier, Florida

In the Florida Keys, Jersey Devil designed a small Montessori school that stays cool without relying on air-conditioning.



4

San Francisco, California

A master plan and a new library/arts center by Simon Martin-Vegue Winkelstein Moris help a private high school to move into a new era.

We are in the midst of a minor boom in school construction. More than $12 billion went into the construction of schools in 1996, 16.6 percent more than in 1995, while existing schools need an estimated $112 billion in repairs. School enrollment will hit a record high of 52.2 million this year and will keep growing until 2007, when it will peak at 54.3 million, according to a U.S. Department of Education report. At the same time, schools themselves are changing. Privatization, computerization, and decentralization are among the more visible trends affecting the design and operation of K–12 facilities.

While these trends have been widely discussed in the architectural literature, the ideologies driving them have not. If anything, the discourse about school design has had a distinctly anti-ideological flavor: much of what gets written focuses on the functional issues of schools, such as the best ways to accommodate technology, achieve flexibility, or provide community access.

An avoidance of ideological discussion also exists among educators. As educational critic Neil Postman writes, "In tracking what people have to say about schooling, I notice that most of the conversation is about means, rarely about ends. . . . It is as if we are a nation of technicians, consumed by our expertise in how something should be done, afraid or incapable of thinking about why."

Functional and technical issues are obviously important. But the architectural community has been blindsided in the past by the utopian ideas of educators, ideas whose physical outcomes, such as open-plan schools or windowless classrooms, have later fallen out of favor. We need to understand these ideas if only to be aware of their limitations.

Three ideologies—three utopian visions that are sometimes presented as cure-alls to the problems of education—have had a direct impact on school design in recent years. Each of these visions has some merit, but when proposed as a panacea, each deserves a critical look.

The Adam Smith approach

The expansion of free markets around the globe has helped give rise to the belief that capitalism can determine all value and solve all social problems. While they do not present themselves as cure-alls, organizations

Thomas Fisher is dean of the College of Architecture and Landscape Architecture at the University of Minnesota. He was executive editor and then editorial director of Progressive Architecture.

such as The Edison Project and Educational Alternatives, which apply private-sector management practices to schools, have been held up by some as the marketplace's answer to public education.

Working mainly in troubled urban schools, these particular organizations have had relatively little impact on the design of schools so far. The Edison Project began with the idea of building new schools, with prototypes to be designed by Venturi Scott Brown & Associates, Frank O. Gehry & Associates, Billes/Manning Architects, and William Rawn Associates, but it and other private ventures have since focused on the efficient operation of existing buildings.

If privatization has had little effect on school design, it also has had little effect on the ways in which public districts look at their schools. "It's surprising," says Bake Baker, AIA, leader of the educational design group at the architectural firm of Hammel Green & Abrahamson, "that more school districts haven't done what companies do: rent high-bay, column-free space for as long as needed. Despite all the talk about privatization, most districts seem determined to build amenity-filled megaschools."

School as marketplace

Educational reform, however, has begun to reflect marketplace models. The "micro-society" concept in education, for instance, creates a simulated marketplace in the schools, where students interact as they would in the larger society to the point where some schools have miniature versions of streets, stores, and banks adjacent to or surrounded by more traditional classrooms. The concept itself seems sensible, a controlled version of John Dewey's belief in learning through experience. But it raises a question about the role we want schools to play in our society. Should schools "educate for the status quo," as Dewey asked, or should they "take an active part in directing social change, and share in the construction of a new social order?"

Architecturally at least, schools have long expressed a difference between education and the marketplace. One-room schoolhouses recalled the noncommercial form of domestic architecture, and early-20th-century urban schools the monumental forms of civic buildings. In recent years, however, schools have increasingly adopted the commercial vernacular of suburban office and light-industrial buildings: one-story, flat-roofed, long-span, nearly windowless structures. The low cost and ease of constructing such buildings helps explain their popularity among cash-strapped school districts. These educational warehouses look more like places of vocational training, though, than places in which the intellect might take flight. The challenge for architects, observes architect William Moore of Roth & Moore, is to "break down the scale and make something memorable even though school districts, wanting efficiency, will scrutinize every decision."

The school as community

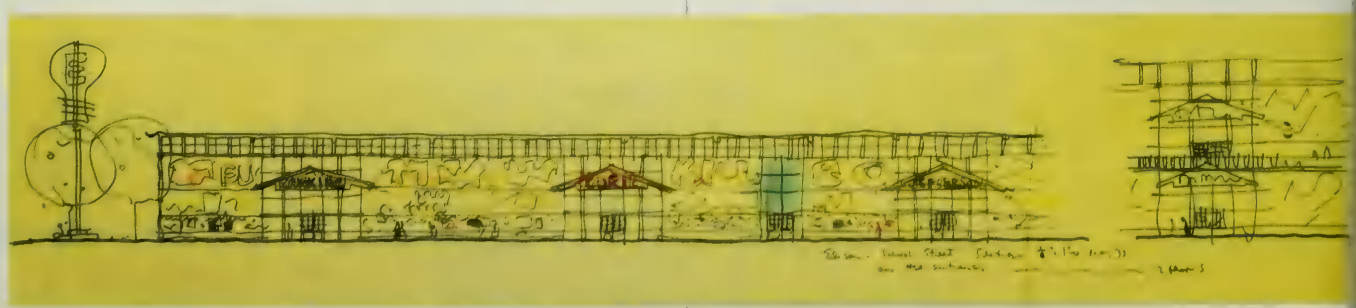
A second ideology driving education is, in many ways, the opposite of the first: it sees community, rather than capitalism, as a cure-all for what ails our schools. While connecting school and community has been a goal at least since the progressive education movement of the early 20th century, the two have become almost indistinguishable since the 1970s, with the community schools movement. That movement sought to bridge the boundaries between school and community. "Community schools," wrote educator Larry Molloy, "do not differentiate between school hours and public hours because the entire building is operated for the benefit of people of all ages in the community."

That notion has obvious appeal—the extension of learning to all people and the conversion of schools to neighborhood centers—but it overlooks the paradoxical nature of community, which must exclude some in order to include others. The Latin root of the word *school* underscores its being both a part of and apart from its surroundings: *schola* means a place for desultory conversation, a loitering place. Community members as well as students, of course, need a place to loiter or recreate, which is why public access especially to school gymnasiums and auditoriums has long been important. (It doesn't hurt, either, in convincing voters to support school levies.) At the same time, schools in impoverished urban areas have become safe havens as daycare centers, clinics, and other social services have begun to find their way there, accessible to both students and the community.

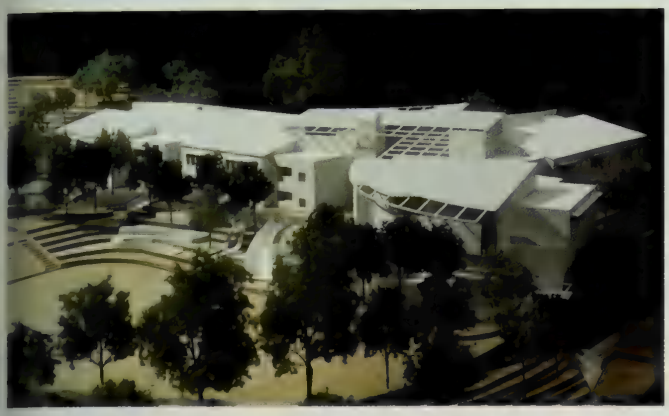
Yet the difficulties of accommodating those functions reveal the conflict in the community ideology. In providing access and community service, schools must also provide a secure place for students, teachers, and their property. Jeffrey Lackney, assistant director of the Johnson Controls Institute for Environmental Quality in Architecture, points to research showing that most districts "want a clear separation between the community and the school with lockable doors." The community they really want in the school, he adds, "are the kids' parents, the cornerstone of improved education." Communities succeed, in other words, by being selective; a completely open community is no community at all.

Understanding that would have saved us other troubles, such as open-plan schools. Widespread in the 1960s and 1970s, these schools sought to provide teachers with flexibility and "to instill in students the quality of independence that we admire in our forefathers," as a 1973 educational report quaintly put it. Beneath those justifications, though, lay the ideal of the singular, harmonious community, carrying on "the tradition of the one-room schoolhouse," according to the same report. The appeal of open-plan schools began to decline in the late 1970s in part because of the noise and disruption their lack of walls created. But these open plans also failed by misjudging the effect that a change of scale can have on a community. A one-room schoolhouse is simply the wrong metaphor for a building containing 1,000 students.

The more appropriate metaphor is that of a town, which schools



A conceptual sketch by Robert Venturi for The Edison Project shows how a school's identity can be established.



Cragmont Elementary School in Berkeley, Calif., designed by ELS/Elbasani & Logan, will have a data network linking computers in each classroom and administrative area to a central server.

designers in the last few years have interpreted in different ways. Some schools have followed a suburban model, with culs-de-sac of classrooms strung like single-family houses along a corridor and with common facilities—gymnasiums, cafeterias, libraries—functionally separate in an adjacent block. While familiar, this configuration has some of the same drawbacks of the suburbs: increasing the isolation and reducing the interactions among people. Other schools have embraced a more urban form, creating identifiable classroom neighborhoods or "houses" along street-like corridors that have common functions along them or at least at opposite ends. At its most extreme, the metaphor of the urban community has led some architects to create educational hilltowns, with corridors or courtyards of various widths along which stand classroom clusters and common facilities. This new urbanism in schools may revive some of the noise and distraction of the old open plans, but it does create the conditions—a rich texture of public and private space within a bounded perimeter—necessary for students to build a real community.

A brave new world

A third ideology in education sees technology, especially communications technology such as television and computers, as a savior. Contrary to the bounded nature of communities, this ideology recalls the yearning in open-plan schools for doing away with walls, indeed with buildings altogether. As former Assistant Secretary of Education Diane Ravitch enthused, "In this new world of pedagogical plenty, children and adults will be able to dial up a program on their home television to learn whatever they want to know, at their own convenience."

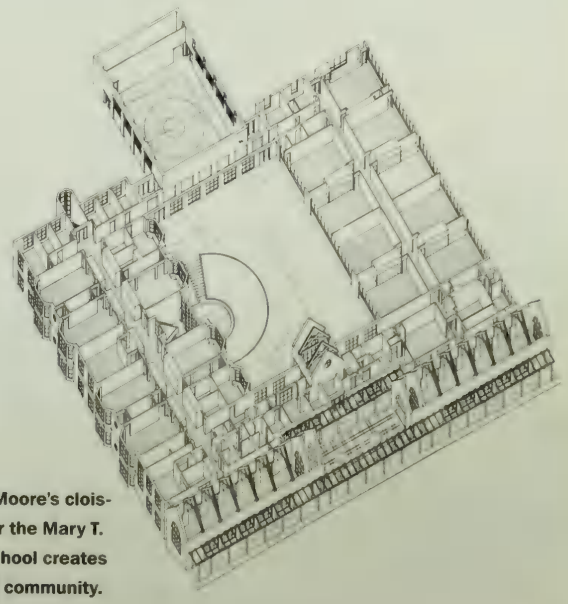
This ideology becomes utopian when it assumes that place doesn't matter, that technology-aided learning can happen anywhere and anytime, ignoring the fundamentally social aspect of education. "Educators," writes Postman, "must guard against computer technology's undermining some of the important reasons for having the young assemble in school, where social cohesion and responsibility are of preeminent importance." Social cohesion, of course, doesn't only happen in an 800-sq-ft classroom with desks all directed toward the blackboard. Some highly computerized schools, like their office equivalents, have begun to provide smaller-scale, more conversation-oriented spaces both in the classroom and in common areas. And if, as some argue, the computer will eventually replace the lecture as a way of transferring information, school buildings will take on an even more important role: the place where information is converted through human interaction into knowledge.

If the computer won't replace schools, neither does it provide an appropriate metaphor for them. One school district, for example, has envisioned building new schools with portable classrooms plugged into a small "core" facility like laptops to a server. Students, however, have enough impermanence and portability in their lives, and a growing body of research shows that students do best, especially those from troubled families or impoverished neighborhoods, in smaller-scale, homelike settings, with longer-term relationships with teachers. "In almost all cases," notes Baker, "test scores go up and behavior improves."

Those who see communication technology creating a brave new world would do well to consider Modern architecture, which had the same aspirations, only to be rejected by those who it sought to save. The same will undoubtedly happen to technology's true believers until they see the computer, as architects have buildings, as a means to educational ends rather than as an end itself. "Schools still put computers in a shrine," says Baker, "which is counter to the world students will move into. Until the computer is seen as almost dispensable, it will not be fully a tool."

It may come to pass, though, that architecture serves as a critical link between the educational community and electronic communications. When students log on to their computers, they leave one space, the school, to enter another, that of Web pages and CD-ROMs. That spatial continuity suggests that the building and the computer ultimately offer the same thing—an educational environment—in different form. Indeed, designing the relationship and interaction between these two types of spaces, the architectural and the virtual, may be one of the greatest challenges facing school architects over the next few decades.

Each of these ideologies promises to improve education, be it through the efficiency of the marketplace, the solidarity of a community, or the efficacy of technology. But when offered as a final solution, a utopia, each position ends up deforming education. "Architects can be real agents of change here," says Lackney, "because most educators do not think enough about the interactions of the physical environment and learning." Knowing when to attend to efficiency and when to ignore it, knowing how to create community and what can destroy it, knowing where to use technology and when to avoid it: these are lessons architects have learned, sometimes the hard way. And there is no better place to share that experience than in our schools. ■



Roth and Moore's cloister plan for the Mary T. Murphy School creates a sense of community.

1 Little Village Academy Chicago, Illinois

ROSS BARNEY+JANKOWSKI DESIGNED AN ELEMENTARY SCHOOL WITH A CIVIC PROFILE IN A HISPANIC NEIGHBORHOOD AND ON A TIGHT BUDGET.

by Clifford Pearson

Project: *Little Village Academy Chicago, Illinois*
Client: *Public Building Commission of Chicago for the Chicago Public Schools*
Architect: *Ross Barney + Jankowski Architects—Carol Ross Barney, FAIA, principal-in-charge of design; Susan Budinsky, AIA, project manager; Eric Martin, construction observation*
Engineers: *D'Escoto, Inc. (mechanical/electrical); Salse Engineering Associates (structural)*
Contractor: *Paul H. Schwendener, Inc.*

Project Statistics
Size: *68,000 sq ft*
Cost: *$7 million*
Cost per sq ft: *$103*
Number of students: *688 capacity; 570 in attendance now*
Number of teachers and staff: *31/26*
Grades: *K–8*

It would be hard to find a public building that packs more architecture onto a constrained urban site than Little Village Academy in Chicago. With a soaring stair tower slicing through its primary elevation, bold forms articulating key spaces such as the cafeteria and library, and a starburst playground, the three-story, 68,000-sq-ft public school has become a landmark in the Little Village neighborhood since it opened last year. "When politicians visit this district, they always come to our school," states Fredric Arana, the principal of Little Village Academy. "That's not true of other neighborhoods."

Equally remarkable is that all this architecture costs just $103 per sq ft, about the same as prototype schools being built in Chicago to save time and money, says Carol Ross Barney, FAIA, the principal-in-charge of design for Ross Barney+Jankowski Architects. Part of a major building program in Chicago that included 14 schools completed at the same time, Little Village stands out for its vibrant design and as an emblem for the mostly immigrant community it serves.

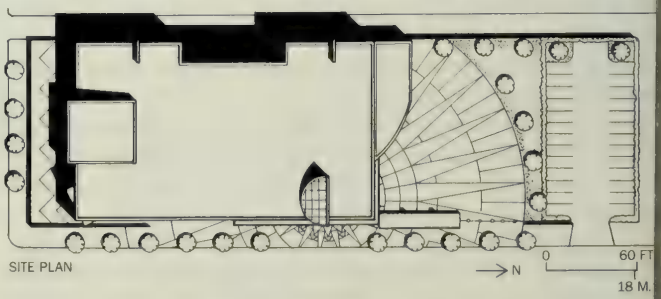
Community roots

Like Cesar Chavez Elementary School, originally called Seward Hedges [RECORD, August 1993, pages 92–95], which Ross Barney+Jankowski also designed, Little Village is in a Hispanic neighborhood where a school is an important symbol of both assimilation and cultural identity. In predesign meetings, community members told the architects they wanted a building that recognized their Mexican heritage.

As she did at Chavez, Ross Barney used strong colors arranged in geometric patterns to recall Latin American design at Little Village.



The school occupies most of a 400-by-120-ft lot, with room for a small play area behind a blue and yellow fence on the south (above) and a larger playground on the north (plan below).

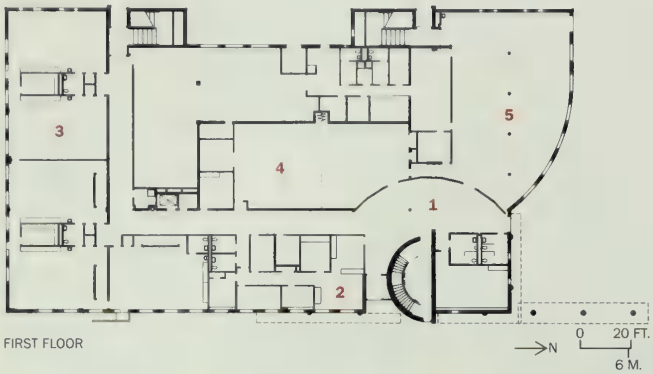


But she also introduced a sun moti that explodes on the surface of the playground and entry lobby and is expressed as a skylit, vertical sundial in the main stairwell. "What could be more Mexican than the sun?" asks the architect. "But at the same time, the dial has to be calibrated to the angle of the sun i the school's particular location, so ties the project to Chicago." At first



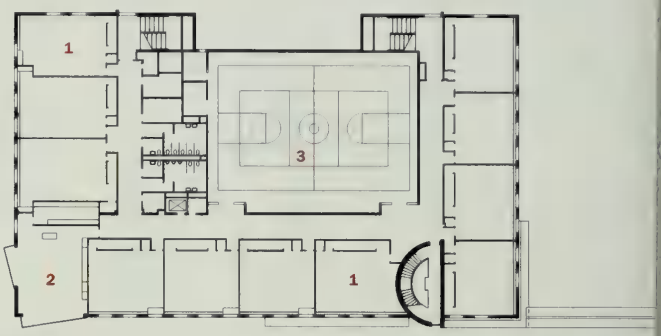
The skylit stair tower alludes to the sun and is now a popular landmark in the mostly Mexican neighborhood. The main entrance is next to the stair; the door at the bottom of the stair was required by fire codes.

1. *Lobby*
2. *Offices*
3. *Kindergarten*
4. *Community room*
5. *Cafeteria*



FIRST FLOOR

1. *Classroom*
2. *Science*
3. *Gymnasium*

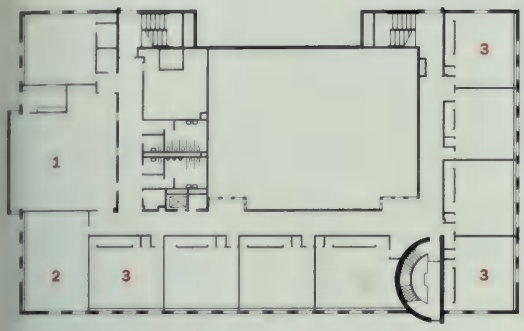


SECOND FLOOR



The main playground was designed as an urban plaza, open to views of the street but stamped with its own identity, seen in the sunburst pavement.

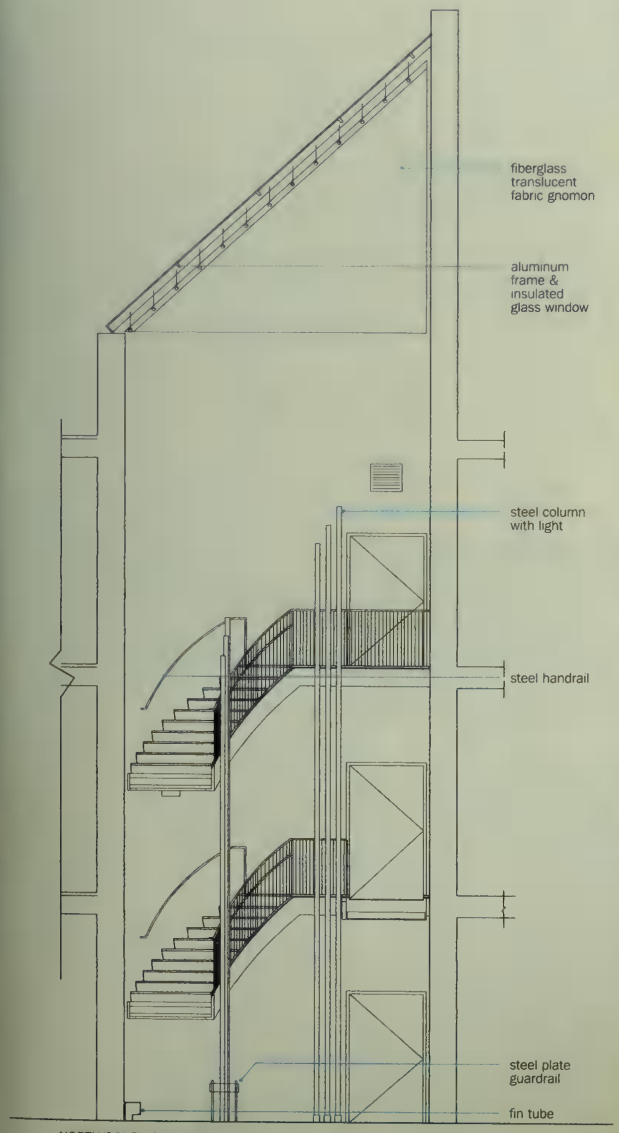
1. *Library*
2. *Computer*
3. *Classroom*



THIRD FLOOR

A bus stop and a row of limestone bollards protect the playground from traffic without creating a fortresslike barrier.





NORTH/SOUTH STAIR SECTION

Chicago's Public Building Commission, the client for the project, wanted the architects to replicate their award-winning Chavez design in Little Village. "But this is a different neighborhood," explains Ross Barney. Commercial structures lie to the south and east, while residential properties are on the north and west.

Planning strategy

The 400-by-120-ft lot is small for a K–8 school, so the architects brought the building envelope right to the sidewalk on the east and west, leaving room for a large playground on the north and a small play area for kindergarten classes on the south. Since the school fronts on a commercial street, "we designed the main play area as a plaza, rather than a lawn," as had been done at Chavez, says the architect.

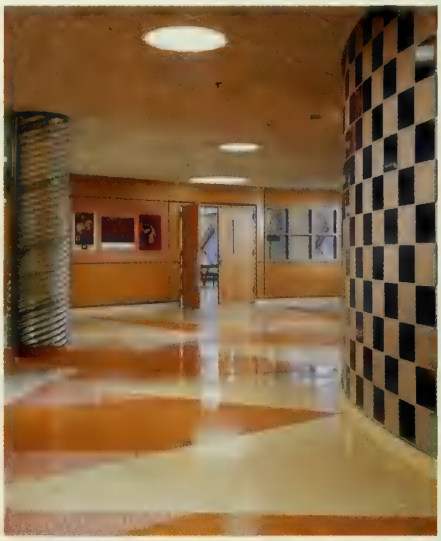
Architectural features

Wanting to give the building a civic presence that could be easily read from the street, the architects added a few dramatic elements to a relatively simple building envelope. The most memorable component of this design strategy is a curving three-story stair tower with an angled skylight at the top. The tower has practically become the school's logo and also serves as its social hub. To meet the fire-code requirements that have made such grand stairs rare these days, the architects enclosed the stair structure so it has a two-hour fire rating and provided a direct exit outside. Three sets of white steel columns support the stair, which is a less expensive solution than cantilevering it, notes Ross Barney.

Pulled out beyond the building's masonry shell and rising above its flat roof, the third-floor library is a porcelain-and-glass box suspended in the larger structure. Clerestory windows on all four sides and vertical shafts of floor-to-ceiling glass at two corners bring plenty of sunlight into the room without resorting to large expanses of glass. In fact, throughout the school, glazing is used sparingly to reduce construction and energy costs and to limit visual distractions.

On the southeast corner, grids of translucent fiberglass panels allow sunlight into a science room without the glare or heat that might interfere with science experiments. Directly above the science room is a computer lab, whose projecting metal sunshades announce the space on the outside of the building while reducing glare on the inside.

On the ground floor, a curving cafeteria breaks free of the school's masonry box, offering views through diamond-shaped windows to the playground beyond. A narrow band of clerestory windows and a couple





In the main lobby (far left), terrazzo, brick, and corrugated metal are tough but playful. In the cafeteria (left) and the library (below), daylight comes from above, the edges, in diamond windows.

of extra feet of ceiling height add a sense of spaciousness to this room.

Keeping costs down

To free up money in the budget for the project's architectural highlights, Ross Barney+Jankowski designed the base building as a simple rectangular box with a compact floor plan. Using a load-bearing masonry structure rather than a steel frame saved some dollars as well. "Steel-frame construction is a little faster, but we had enough time on this project and decided that saving the money was more important," explains Ross Barney. To dress up the exterior at low cost, the architects combined rough-faced brick with burnished brick and used bold colors such as blue and yellow in strategic locations.

Efficient floor plan

The school's simple rectangular footprint and standardized classrooms make for efficient floor plans. Wrapped around the building's perimeter on three sides (the fourth side is an alley), the 900-sq-ft classrooms can accommodate 30 students each. Kindergarten and preschool classrooms, which are on the first floor, are 1,200 sq ft and have access to play areas directly outside. Other public functions, such as a community meeting room, are also on the first floor.

To break down the experience of long hallways, the architects used several strategies, including changing ceiling heights and light fixtures at intersections and traffic nodes, and using color and texture to add visual variety. Angled stripes of color, for example, shoot along some hallway walls. Corridors are all interior spaces, but sunlight seeps in from the main stair hall and from windows at two ends.

Color and materials

Ross Barney employed splashes of color to enliven the school's interior surfaces, most of which are neutral yellows and off-whites. For example, checkerboards of glazed colored tiles adorn the hallway side of the curved staircase wall and an irregular pattern of colored, glazed, and rough-faced blocks brightens the hallway wall of the gymnasium.

To create a sense of progression from lower grades to upper ones, Ross Barney+Jankowski varied the colors used for trim and elements such as chalkboards and bulletin boards—moving from primary colors on the ground floor to more "adult" colors above. Because the wall of the gym is long, the architects studded it with a few glass blocks and put windows at the two ends so people in the hallway could see inside. On the third story, these windows, affectionately referred to as "skyboxes," offer views down to the gym floor below.

Reaction from users

Principal Arana, who had been the assistant principal at Chavez, says, "I think Little Academy is even better than Chavez. We had more money here and we learned a lot from the first school. As a result, I think this building is more conducive to learning." Arana is also pleased with what he has heard from people in the community. "They tell me it looks Mexican," he says.

One of the challenges for the architects, says Ross Barney, was giving the school a Mexican feeling without making it look foreign to its surroundings. By using local brick and echoing the massing of nearby buildings, Ross Barney made sure that the school "still looked like Chicago." ■

Manufacturers' Sources
Glazed masonry unit: *Trenwyth*
Glazed brick: *Elgin Butler*
Aluminum curtain wall: *Pittco*
Aluminum-clad wood windows: *Weathershield*
Translucent glazing panels: *Kalwall*
Wire-glass windows: *Pilkington*
Skylights: *Mirage Skylights*
Insulated glazing panels: *Robertson*
Unglazed mosaic tiles: *Dal-Tile*





The sundial in the stair tower refers to the role of the sun in Aztec culture without being a literal allusion to Mexican architecture.

2 North Fort Myers High School North Fort Myers, Florida

BY ADDING SOME MAJOR NEW BUILDINGS AND RENOVATING OTHERS, PERKINS & WILL TRANSFORMS A SCHOOL THAT GREW OVER THREE DECADES

by Beth Dunlop

Project: *North Fort Myers High School North Fort Myers, Florida*
Client: *School District of Lee County, Florida*
Design Architect: *Perkins & Will—Ralph Johnson, FAIA, design principal; C. William Brubaker, FAIA, managing principal; Jerry Johnson, AIA, senior designer; Jim Woods, AIA, project manager*
Architect of Record: *Parker/Mudgett/Smith Architects—Wiley Parker, AIA, principal-in-charge; John A. Hendry, project manager*
Engineers: *Butler Engineering (civil); Jenkins & Charland (structural); Tilden Lobnitz and Cooper (mechanical/electrical)*
Consultant: *Burner & Company (landscape)*
Construction Manager: *Brown & Root Building Co.*

Project Statistics
Size: *183,000 sq ft (includes 137,000 sq ft of new construction, 33,000 sq ft of renovated space, and 13,000 sq ft of unchanged space)*
Cost: *$18 million (includes site development, $14 million construction, and fixed equipment)*
Cost per sq ft: *$98*
Number of students: *1,600*
Number of teachers and staff: *91/43*
Grades in school: *9–12*

Many new high schools—especially those in urban areas—tend to take on a fortresslike appearance. Security becomes a dominant factor, and the academic buildings end up behind high walls. At North Fort Myers High School on Florida's Gulf Coast, the effect is the opposite. Though the project's courtyards are gated and can be closed at night, the school is essentially open. For Perkins & Will, the country's most prolific school-design firm, this is fundamental. "If you treat students as prisoners, they act as prisoners," says design principal Ralph Johnson, FAIA. "You've got to give them a sense of dignity and pride in their environment."

Existing conditions

For this project, Perkins & Will did not start with a clean slate. On the site were school buildings from the 1950s, 1960s, and 1970s, a collection of disparate styles and structures. The architects were asked to use what they could, create a fully up-to-date facility, and plan it so that construction would not interrupt the operation of the school, which is a specialty, or magnet, high school focusing on mathematics, science, and environmental studies in this fast-growing city.

Beth Dunlop is a contributing editor of RECORD *and was the architecture critic of the* Miami Herald *for 15 years.*

Design strategy

"We wanted to give the place a heart," says Johnson, who worked on the project along with managing principal C. William Brubaker, FAIA, as he has done on many schools over the past two decades. "It didn't really have a central space, a gathering space. We wanted to add some spatial hierarchy, add some symbolic qualities."

Planning strategy

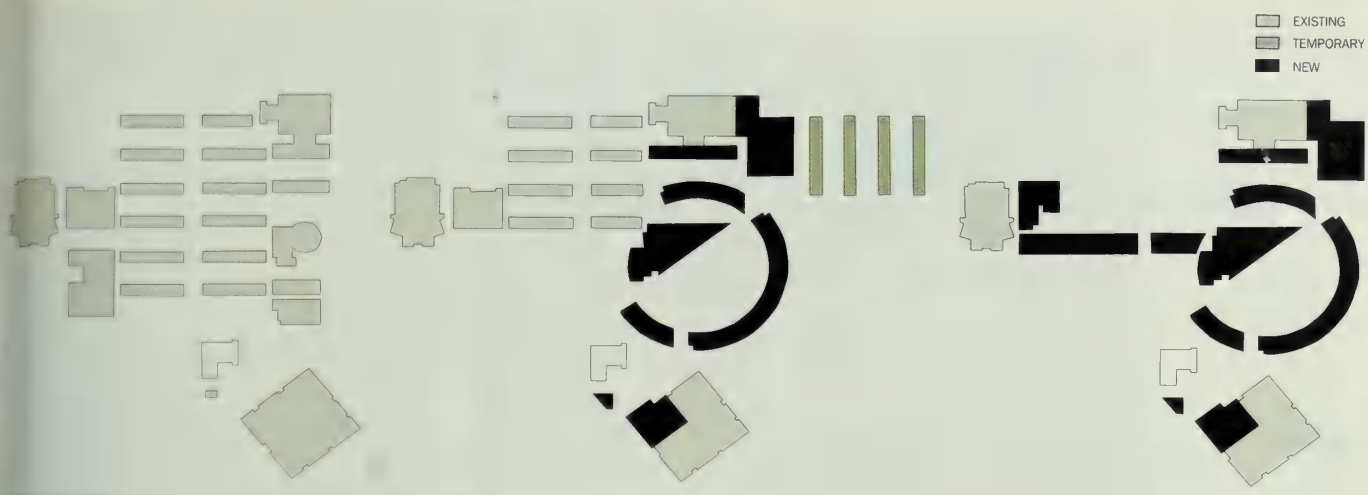
Existing buildings still in good condition were to be kept, while others were to be demolished. For exam-



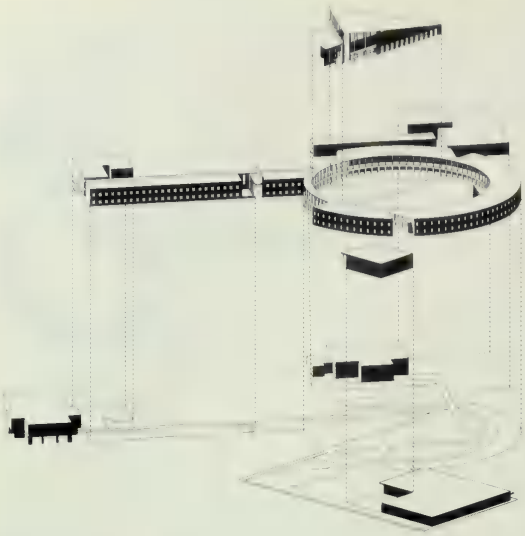


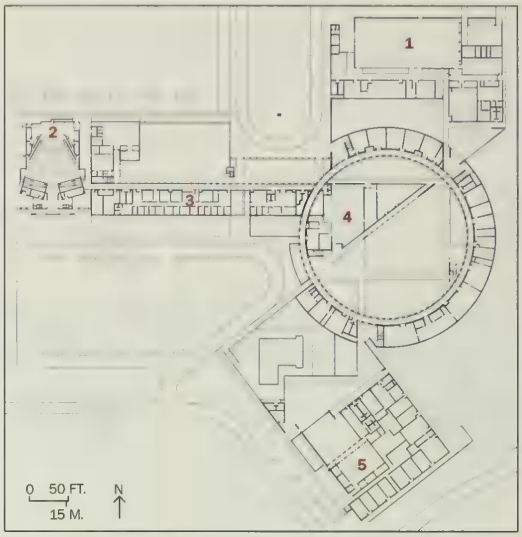
Although the campus is gated for security, the architects established a vocabulary of breezeways, covered walkways, and slender columns that presents the image of openness (above and left).

New buildings define a large circular courtyard that gives the sprawling high school a focal point that it lacked before (plans and photo opposite).


EXISTING
TEMPORARY
NEW
EXISTING CONDITION
INTERIM SCHEME
FINAL SCHEME







1. *Gym (existing)*
2. *Auditorium (existing)*
3. *Sciences (existing)*
4. *Media center (new)*
5. *Classrooms (new)*

A new media center (right in photo below) is housed in a triangular-shaped, sloped-roofed building surrounded by a two-story circular classroom building.







Covered corridors on the classroom building (far left) reduce energy-consuming air-conditioned space. Overhanging eaves on the media center (left) protect the interior (below) from direct sun.

ple, the auditorium, built less than 20 years before, "was in reasonably good shape," Johnson says, but the gym—from the 1950s—was not. Furthermore, the parts of the school that could be saved were scattered across the campus, all of which posed logistical as well as architectural difficulties.

To solve this tricky set of problems, Perkins & Will chose "a simple composition that would have some power and pull everything together again," explains Johnson. The idea was to use a "collage strategy," superimposing new spaces and buildings onto the existing plan. The buildings became means to an end, "like arms stretching out to pull the pieces together again."

From those ideas came the simple geometry of the new buildings: basically a bar and a circle. The new media center is housed within the circular classroom building, cutting the courtyard at an angle. The media center is considered the academic heart of the school—it houses a library, computer classrooms, and a radio/television laboratory—while the courtyard is the social and cultural center of the complex. The angle of the media building not only gives the courtyard a distinctive shape but also ties the new buildings in with the old. An existing building was already set askew on the site.

The gym was renovated and expanded. One older classroom building was renovated to include a new cafeteria and art studios.

Materials

The client, the Lee County school district, asked for brick, which is not a typical tropical cladding but is used as trim for the school's existing stucco buildings. Perkins & Will chose to use several hues of brick—beige, buff, and terra cotta.

Environmental concerns

The school takes good advantage of the generally amenable Florida weather. All circulation is out-of-doors: covered walkways connect classroom buildings, and public spaces are either courtyards or covered walkways. The covered walkways have the added advantage of letting natural light into the classrooms but shielding students from the sometimes fierce sun. The metal-roofed media center building has a row of clerestory windows that infuse it with light.

Though the school's classrooms and laboratories are conventional—designed to meet the Florida Department of Education standards—there are some unusual aspects to the school design that are intended to reinforce the environmental studies program. There is a preserved wetlands area adjacent to the parking lot that serves as both a study area and a reminder of the swamplands that once dominated southern Florida. The school also has an environmental science yard and an experimental garden for explorations of native plants, xeriscape (desert landscape), and other ecological studies. ■

Manufacturers' Sources

Built-up roofing: *Johns Manville*
Standing-seam Galvalume roofing: *Berridge*
Acoustical ceilings: *Armstrong*
Casework: *American Laminates*
Plastic laminate: *Wilson Art*
Ceramic tile: *Dal-Tile*
Resilient flooring: *Kentile*



3 Montessori Island School Tavernier, Florida

JERSEY DEVIL SURFACES IN THE FLORIDA KEYS TO DESIGN A SMALL SCHOOL THAT RELIES ON NATURAL VENTILATION AND SHADING TO STAY COOL.

by Beth Dunlop

Project: *Montessori Island School Tavernier, Florida*
Client: *Noseeum, Inc./Montessori Island School, Inc.*
Architect: *Jersey Devil—Jim Adamson, Steve Badanes, partners-in-charge and project designers*
Architect of Record: *Taxis Architects—Brad Schiffer, partner*
Engineer: *Lenny Fonticiellia (structural)*
Consultant: *Anita Jorgensen (lighting)*
General Contractor: *C+E Construction*

Project Statistics
Size: *8,500 sq ft, including covered outdoor space*
Number of students: *120*
Number of teachers and administrators: *8/1*
Grades included: *ungraded Montessori school for ages 2 to 9*

Though the Florida Keys have long attracted iconoclasts, they have never been known as a place for progressive education. Thus, the brightly colored new Montessori Island School stands out in several ways. For one, it is the first institutional building for the nomadic design-build firm of Jersey Devil, which has earned its reputation and renown for handmade houses and public art installations. For another, this school in the tiny, historic town of Tavernier may be the first Florida school built without air-conditioning in well over three decades.

Environmental goals

"It has a vernacular design that is environmentally responsible and sensitive to the needs of the kids," says Jersey Devil partner Steve Badanes. "The school is passively cooled and naturally lighted." To achieve its environmental goals, Jersey Devil used radiant barriers in the external walls, a vented roof, and vented eaves. Time-tested techniques, such as facing the building toward the prevailing southeastern trade winds and placing more windows to windward than leeward, also came into play here.

History with the clients

The clients for the school, Ron Levy and Beth Kamenstein, had worked with Jersey Devil before—on their own house in the Keys. Because Jersey Devil partners Badanes and Jim Adamson generally live on site and build their projects by hand, Levy and Kamenstein knew the partners in the firm quite well.

Educational program

Levy and Kamenstein, who have two small children of their own, learned about the Montessori method of education from a friend who operated some of these schools in California. Developed in Switzerland by Maria Montessori in the early years of this century, the method tries to encourage the creativity and individual talents of young children.

In a Montessori school, children are not grouped by age the way they might be in a typical school; at the Island School, 2-to-5-year-olds are in the same



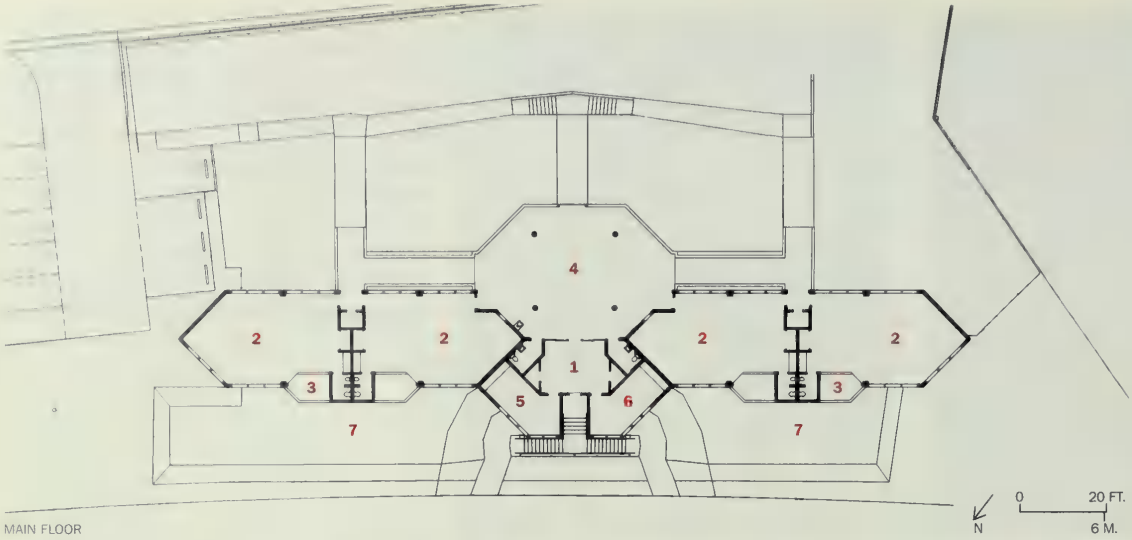






Rather than being air-conditioned, the school relies on natural ventilation and sun shading. The front of the school (opposite top) faces north and includes small screened porches off each classroom. The south elevation (opposite bottom and this page) has canvas awnings to shade windows. A second phase of construction will include another building to the south that will create a thermal wind chimney and eliminate the need for the current awnings.

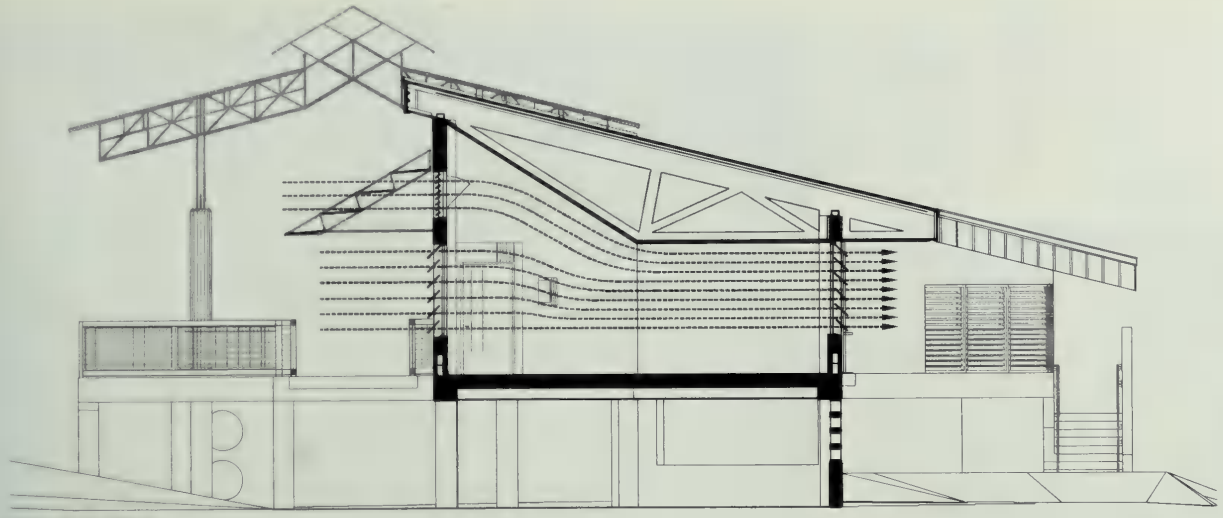




MAIN FLOOR

1. *Reception*
2. *Classroom*
3. *Screened porch*
4. *Covered deck*
5. *Teachers' lounge*
6. *Administration*
7. *Septic berm*

A drawing (opposite top) shows how air moves through the school. High ceilings, louvered windows, and fans promote natural ventilation in classrooms (opposite bottom). Under the deck, an outdoor classroom is protected from the sun and rain (this page).



NORTH-SOUTH SECTION

classrooms and 6-to-9-year-olds study together. The school is now at its capacity of 120 students, 30 to a classroom, with two teachers per room. "The philosophy," says Levy, "is that of the children's house, that the classrooms should have the comforts of home, especially since the children stay in the same classroom for three years."

Working method

The time frame was tight, so Jersey Devil worked with Taxis Architects of Miami as associate architects and used what Levy terms "the typical construction of the Keys—concrete block, awning windows, and a 5-V crimp metal roof." Badanes lived and worked on the site for a month but then turned the final execution over to others.

Architectural approach

The school design is simple: four classrooms raised off the ground. The classrooms have ceiling fans and shaded louver windows covered with canvas awnings. Each classroom has a little screened porch to bring the outdoors even closer. The lighting in the school is fluorescent, selected for energy savings and designed for no heat gain. The classrooms are reached through a system of ramps and walkways, and they flank a covered hexagonal deck. This shaded outdoor space, covered with a vented canvas top, functions as a "big central piazza," says Kamenstein.

Because the school is up one story, there is covered play space under the building where the children produce plays and install art exhibits. The playground—designed by artist/builder James Talbot of Austin, Texas—is partially under cover, as well. South Florida's climate is so amenable that the children can be outside most days.

Environmental pay-off

Badanes points out that the result of the design is that the electric bill is less than $1 per child per month. Soon, a second phase will be built—a mirror image of the first, enclosing the piazza—and will complete the environmental program of the building as hot air is pulled under the building and recirculated up through the central corridor. ■

Manufacturers' Sources

Concrete sealant and stain: *Okan*
Awnings, fabric roof, sunshades: *Cross Key Canvas*
Interior paint: *Benjamin Moore*



4 Lick-Wilmerding School San Francisco, California

A MASTER PLAN AND NEW LIBRARY/ARTS CENTER BY CATHY SIMON BRING A PRIVATE SCHOOL UP TO DATE WHILE RECALLING ITS ORIGINAL MISSION.

by Eric C.Y. Fang, AIA

Project: *Library/Arts and Humanities Center, Lick-Wilmerding High School San Francisco, California*
Architect: *Simon Martin-Vegue Winkelstein Moris—Cathy Simon, principal-in-charge; John Long, project manager; Liza Pannozzo, project architect; Stephen Phillips, Dan Cheetham, project team; Alyosha Verzhbinsky, master plan; Donald Cremers, interiors*
Engineers: *Steven Tipping + Associates (structural); O'Mahony & Meyer (electrical); JYA Consulting Engineers (mechanical)*
Consultants: *Illumination Design Collaborative (lighting); Richard Vignolo (landscape); Wilson Ihrig & Associates (acoustical)*
General Contractor: *Plant Construction Co.*

Project Statistics
Size: *17,000 sq ft*
Cost: *$2.95 million*
Cost per sq ft: *$174*
Number of students: *345*
Number of teachers and staff: *40/20*
Grades in school: *9–12*

Lick-Wilmerding High School was founded as a vocational school in a lower-middle-class district of San Francisco in 1895. Today, while focusing on college preparation, Lick-Wilmerding maintains a strong commitment to technical arts, requiring students to take at least five semesters in wood, metal, and machine shop, or drafting and design. This belief in the enabling potential of technical skills is summed up in the school's pragmatic motto, "Education for the head, heart, and hands"—leading one educator to describe Lick as "John Dewey come alive."

But with its academic program and reputation long since having outpaced its utilitarian 1955 campus, a new library was a top priority on the school's long list of physical needs. Familiar with the work of Simon Martin-Vegue Winkelstein Moris (SMWM) at other local prep schools (such as the Urban School and University High School), Lick-Wilmerding's board of trustees hired the firm in 1989 to develop a master plan for the school.

Planning strategy

SMWM's plan established a quadrangle facing out toward the city to serve as the symbolic heart of the school. By terracing a new faculty

Eric C.Y. Fang is an architect with SOM in San Francisco.



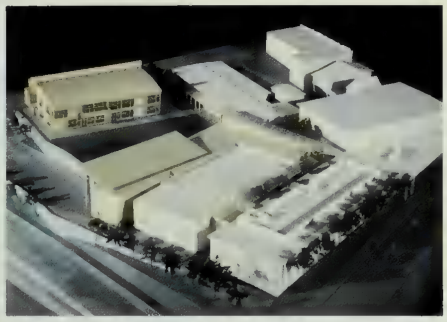
A classroom wing (above) faces south to residences. The new building completes a quad (plan below).



SITE PLAN



A model shows the entire school as envisioned by the SMWM master plan (below). The library portion of the new building, along with studios tucked underneath, faces the quad to the north (left). Smooth and corrugated cement panels are used as exterior finish on the north and east facades (bottom).



parking lot 13 ft below the quad on the east side of the property bordering a freeway, the plan banished cars from sight within the campus. SMWM's plan also recentered the school on the shops (metal, wood, and machine) located on the west side of the existing L-shaped complex by placing the new library on the south side of the school.

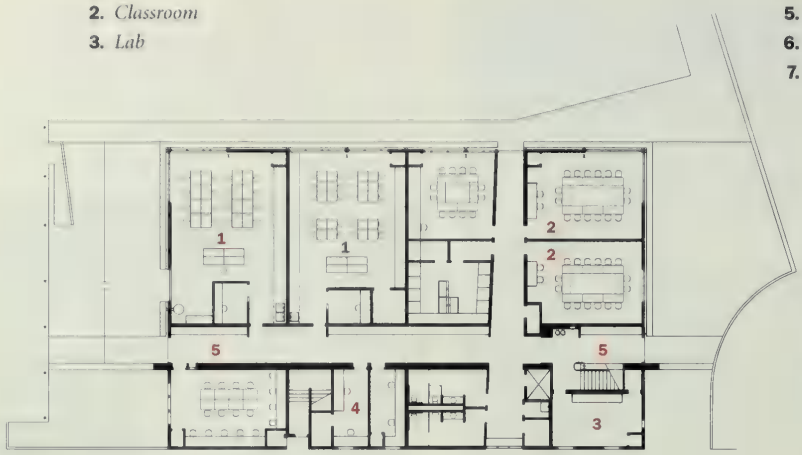
Architectural strategy

The new library, which SMWM was hired to design in 1994, mediates between a neighborhood of primarily single-family houses on the south side and the quad to the north. SMWM exploited this duality by adopting an "inside-outside" massing strategy with a flat-roofed classroom wing facing the street and shielding a vaulted structure on the campus side that contains the studios and library. Separation between these two components is articulated by a brightly colored 38-ft-high wall running the length of the building. The street side of the classroom wing is a carefully composed and residentially scaled, if conventional, stucco box. Shading devices, intended to reduce solar loads and provide articulation to the south-facing windows, were eventually eliminated to save money.

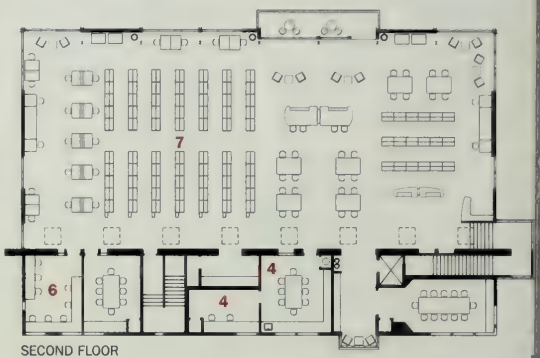
The designers focused their energies on the campus side, where they deployed flat and corrugated cement panels in a grid to provide



1. *Studio*
2. *Classroom*
3. *Lab*
4. *Office*
5. *Gallery*
6. *Audiovisual*
7. *Library*



FIRST FLOOR



SECOND FLOOR

an interesting play of light. The panels themselves (which other architects such as Jim Jennings and Mark Horton have experimented with in Bay Area residential projects) allude to the industrial characteristics of the existing buildings around the quad. At approximately $8 per sq ft, SMWM's face-fastened, caulk-joint system for the cement panels is a cost-effective alternative to other comparable exterior finish systems such as stucco and EIFS.

Interior detailing is disciplined by a proportioning system derived from the exterior grid. This system carries through to the SMWM-designed furnishings, carpeting, and signage. As a result, the design works together at different scales, while an overlay of freely disposed primary colors keeps the grid from becoming overbearing—a pronounced *de Stijl* influence.

The "head, heart, and hands" trinity is felt throughout: from SMWM's decision to expose the structural elements at the library's vaulted roof and cement-panel fasteners, to the choice of materials such as Italian artisan plaster and stained concrete, which evidence technique and weathering.

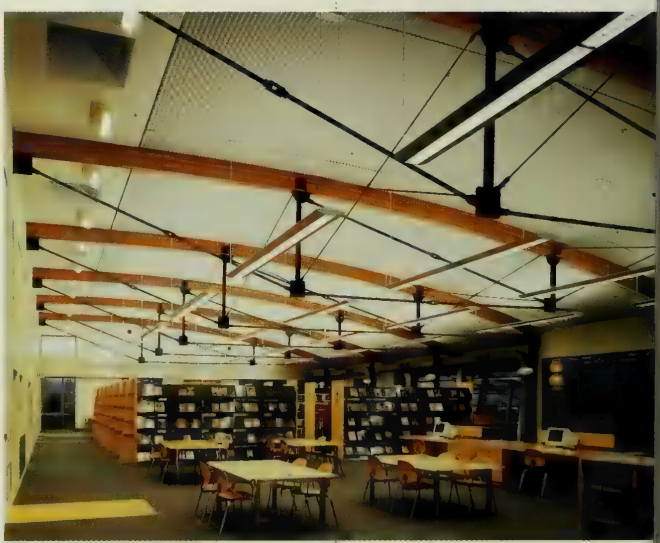
Programming

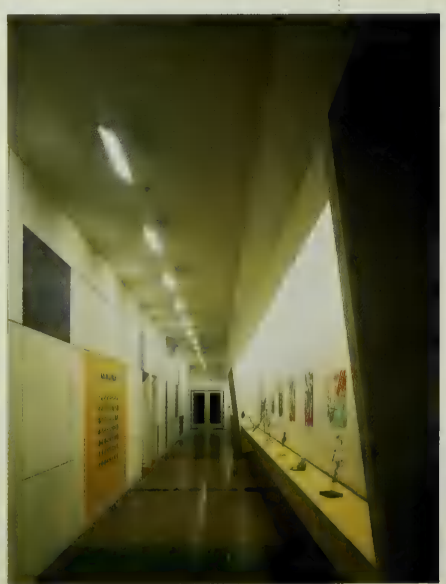
The library building was originally intended to house fine arts studios on the ground level with a 7,100-sq-ft library located on a piano nobile above. Classrooms were subsequently added to the program to keep the new building from becoming the exclusive domain of the arts. SMWM sought to maintain a workshop atmosphere below with stained-concrete floors and corrugated aluminum ceilings (later cut to save money) while providing a gallery for student projects along the main circulation spine.

Plans call for the library to eventually expand from the present 9,000 volumes to 25,000 volumes. To entice students to spend time at the library, the programmers drew from popular retailing concepts such as all-night copy centers and Barnes & Noble superstores. Thus the library is equipped with scanners, CD writers, a sound-dubbing system, a copy center nicknamed "mini-Kinko's," and a lounge with a balcony and views of the city. ■

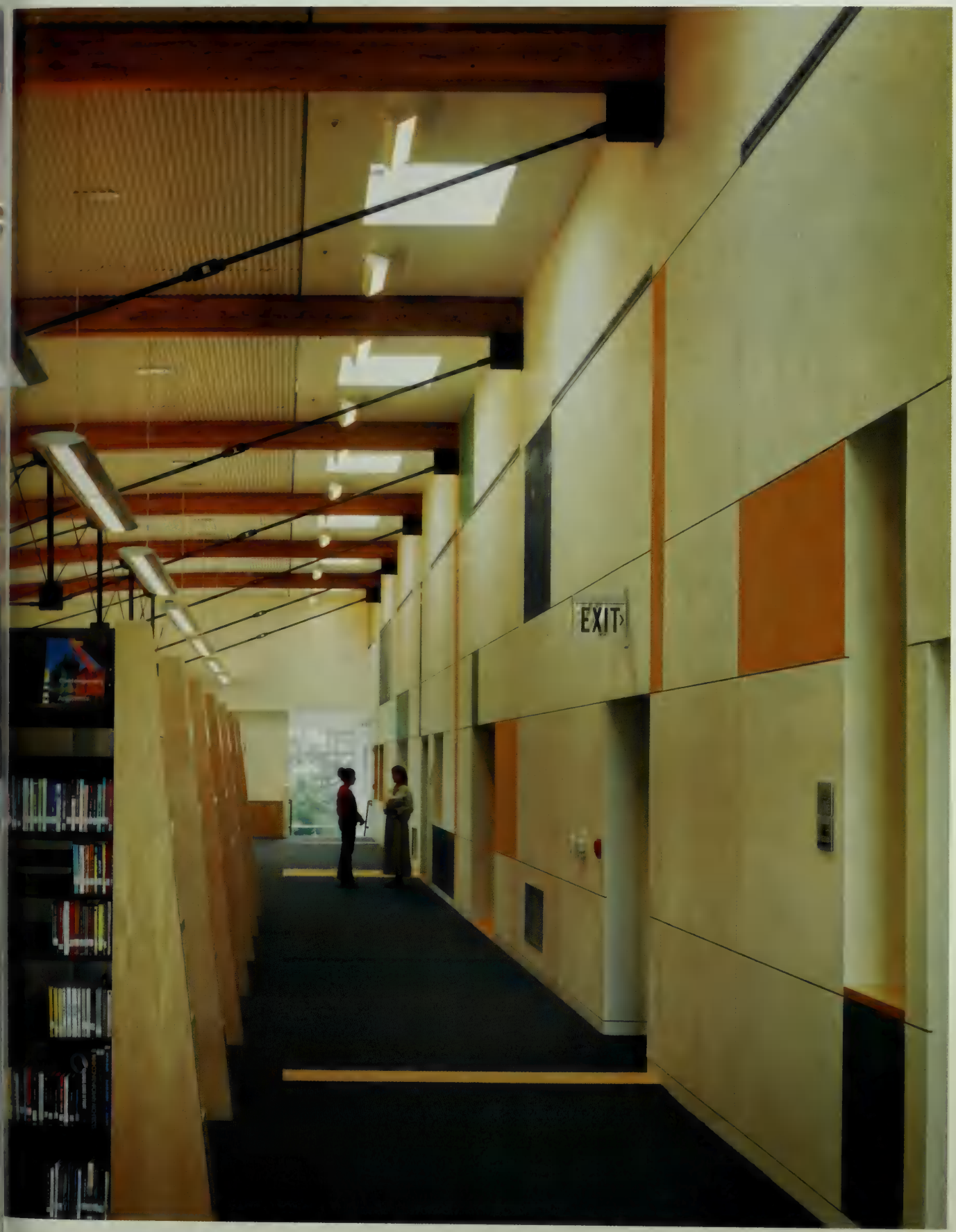
Manufacturers' Sources

Flat cement-board panels: *Eternit (Eflex)*
Corrugated cement-board panels: *Cemfort (SupraCem)*
Composite-metal building panels: *Alucobond Technologies*
Preformed-metal roofing with zincalume finish: *BHP*
Aluminum windows and entrance system: *Vistawall*
Corrugated-metal ceiling system: *USG Interiors (Donn Centricitee)*





A wood-frame building with plywood shear walls, the library has composite glulam-and steel-rod roof trusses exposed in the main reading room (above). The colorful panels included in the gridde library walls give the composition a distinctive *de Stijl* flavor (opposite). The east-west corridor on the ground floor was designed with lighted alcoves to function as ■ long gallery for the exhibition of students' work (left).


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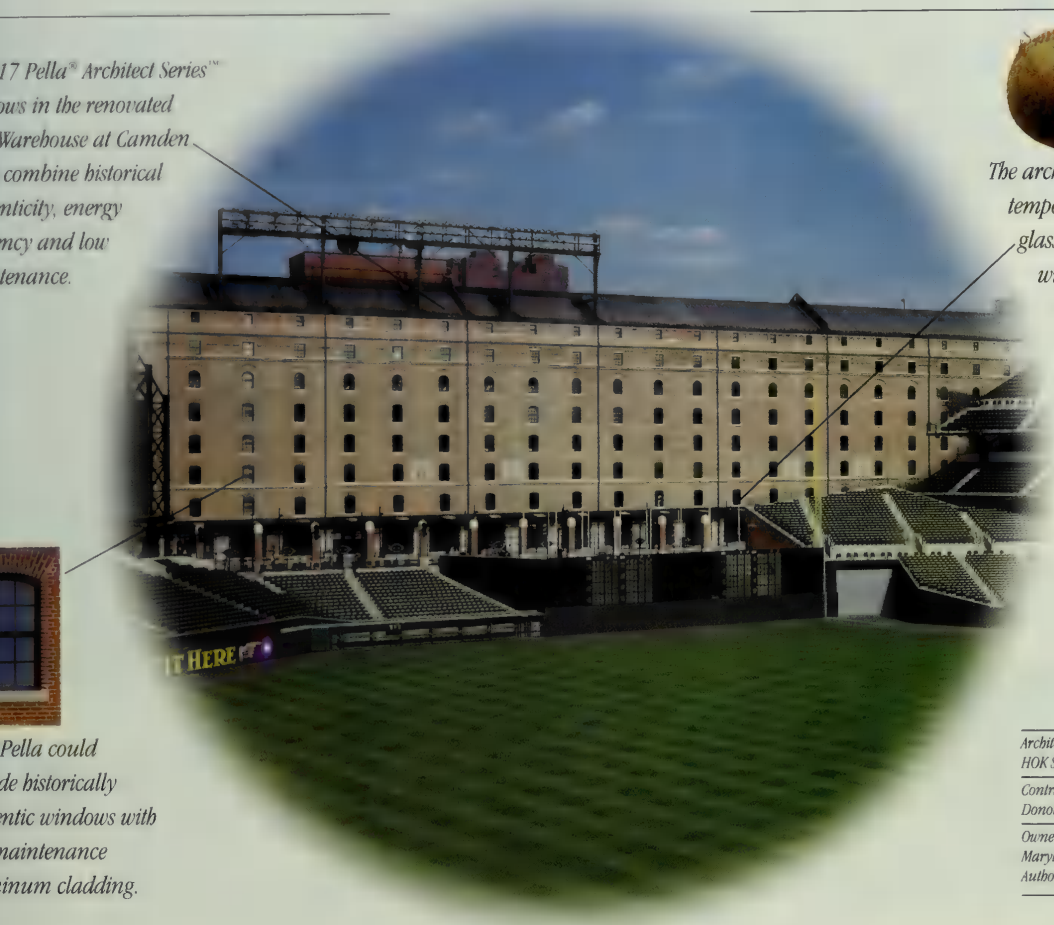
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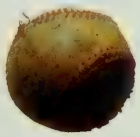
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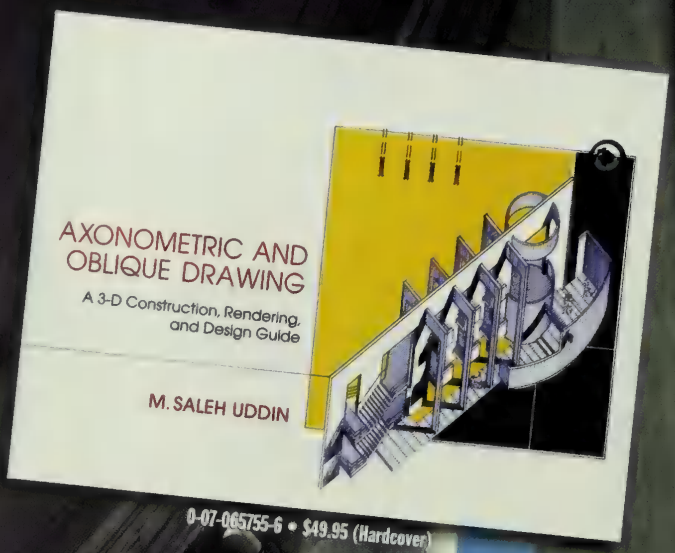
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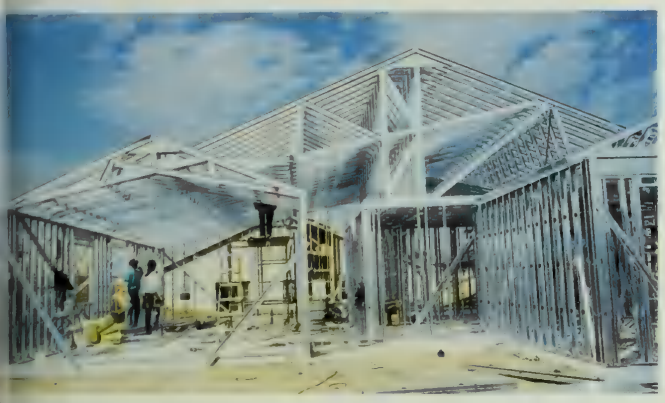
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JOHNS MANVILLE

The Maturing of Metal Framing

IN RESIDENTIAL CONSTRUCTION, METAL-STUD FRAMING HAS BEEN AN ALSO-RAN. BUT NEW PRESCRIPTIVE STANDARDS, CODE ACCEPTANCE, NEW PRODUCTS, AND TRAINING MAY MAKE METAL AN EVER-MORE VIABLE ALTERNATIVE TO WOOD.

by Nancy B. Solomon, AIA



While metal-stud framing can look like wood, there are differences in sizing and attachment.

Several years ago, scared by the volatility of wood prices, a handful of architects and contractors began turning to cold-formed—also called light-gauge—steel to frame their residential projects. Proponents of the material touted its advantages over wood, but esigners and builders found a dearth of established standards and a carcity of trained workers. The steel industry has worked hard in recent ears to develop a framework of building codes, training programs, tools, nd a standardized network of material suppliers nationwide to support ie technology. These improvements may well help advance cold-formed eel further into the market.

The various cold-rolled profiles used in residential framing—ıcluding structural C studs, U-shaped track, angles, and "hat" furring ctions—are fabricated out of coils of galvanized (zinc-coated) flat sheet eel. Stud walls, floor joists, and roof trusses can be assembled in a fash-ın similar to corresponding wood products. Cold-formed steel members e typically fastened with screws.

ontributing editor Nancy B. Solomon, AIA, based in Beltsville, Md., writes on a ide variety of architectural subjects, including technology and professional practice.

Continuing Education *This month's installment of the ARCHITECTURAL RECORD/AIA Continuing Education Series looks at steel framing for residential construction. After reading the article, complete the questions (page 160) and check your answers (page 162). AIA members may fill out the self-report form (page 162) and send it in for two AIA Learning Units.—Mark Scher, AIA Director Professional Products and Services*

Learning Objectives *After reading this article, you will be able to:*

- *Describe stud-wall, panel, and pre-engineered assembly approaches.*
- *Identify at least ten pros and five cons in specifying steel.*
- *Relate four major developments in codes and standards that have affected the use of light-gauge steel in construction.*

Cold-formed steel is not a recent invention. As early as the 1940s, industrial buildings were being constructed with it, prompting the American Iron and Steel Institute (AISI) to develop its first specification for the design of cold-formed steel structural members in 1946. By the 1970s, many commercial projects were being erected with the material. Although there were regional attempts to frame homes with steel in the past, a broad-based effort began only five years ago when wood prices began to escalate. "The fluctuations of the lumber market held us hostage," recalls Hank Mailand, the research and product development manager at Taylor Woodrow Homes in Laguna Hills, California.

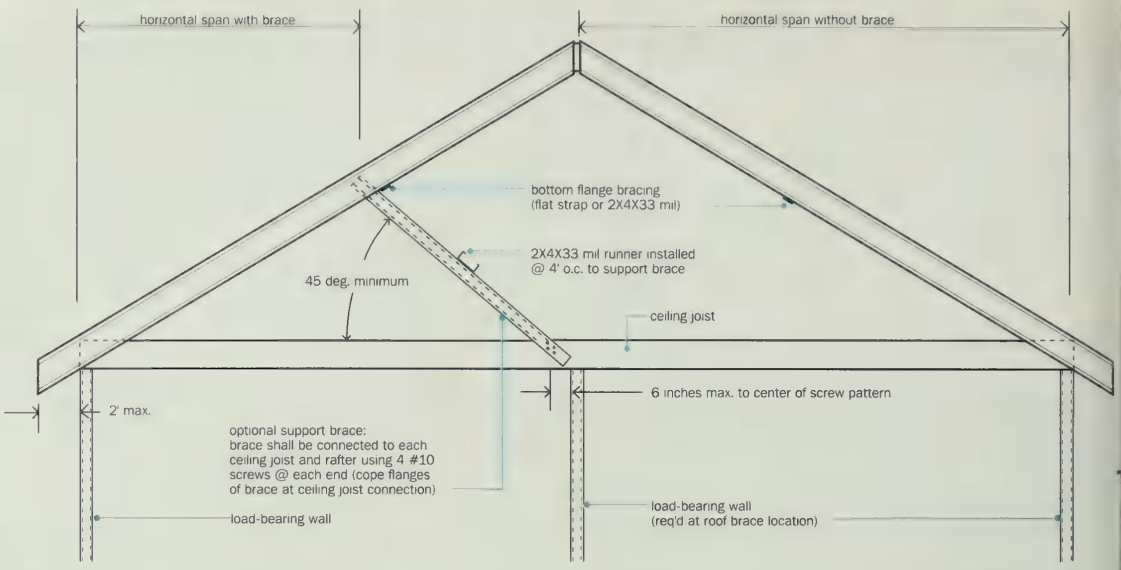
According to Larry Williams, managing director of the Light Gauge Steel Engineers Association of (LGSEA) in Nashville, Tennessee, "stick" construction and panelization are the two prevailing methods of building homes with steel. Stick construction is comparable to traditional wood construction in that the studs are assembled on site in the familiar platform framing system. The studs are typically placed 24 inches rather than 16 inches on center and are connected to steel tracks at the bottom and top. Panelization differs chiefly in that entire wall sections are built in the factory. These panels are then shipped and erected in the field. Less common are pre-engineered systems, in which all the pieces of the house are sized, cut, and shipped to the site as a kit of parts, not unlike the houses once sold through catalogs by Sears Roebuck & Company. Many of the pre-engineered systems incorporate post-and-beam construction. Any of these methods may rely on larger, hot-rolled steel shapes for members carrying particularly large loads.

Steel proponents cite a host of benefits of steel over wood. For one, steel remains in abundant supply. According to consulting engineer

INSULATION EQUIVALENT FOR STEEL AND WOOD FRAMING

	STEEL	WOOD
WALL R VALUE 13		
CAVITY INSULATION R VALUE	11	12
EXTERIOR SHEATHING	1 IN. EXPANDED POLYSTYRENE	1/2 IN. PLYWOOD AND ALUMINUM SIDING
WALL R VALUE 13.5		
CAVITY INSULATION R VALUE	13	11
EXTERIOR SHEATHING	1 IN. EXPANDED POLYSTYRENE	5/8 IN. CEDAR AND 4 IN. BRICK
WALL R VALUE 15		
CAVITY INSULATION R VALUE	11	11
EXTERIOR SHEATHING	1.5 IN. EXPANDED POLYSTYRENE	1 IN. POLYISOCYANURATE AND STUCCO
WALL R VALUE 20		
CAVITY INSULATION R VALUE	15	12
EXTERIOR SHEATHING	2 IN. EXPANDED POLYSTYRENE	1.5 IN. POLYISOCYANURATE AND ALUMINUM SIDING

SOURCE: AMERICAN IRON AND STEEL INSTITUTE



Roof section (right) and window-head detail (opposite) are shown as they appear in the prescriptive method for metal framing. Code organizations have already accepted elements of the method.

Steven H. Walker of Windemere, Florida, "If you converted every stick of wood currently installed in U.S. housing to steel, residential construction would consume only 5 percent of the steel produced nationwide." Timber, on the other hand, has suffered from supply disruptions related to diminishing reserves of old-growth timber in the Pacific Northwest. Users have questioned whether quality has been lost as sources shifted to the much younger forests of the Southeast. This dramatic disruption in supply, fueled largely by environmental concerns, has triggered tremendous volatility in lumber prices, although costs have been relatively stable in recent months. Steel quality and prices, on the other hand, have exhibited relatively little fluctuation all along.

Steel is dimensionally stable, while lumber can twist, warp, or split, though engineered-wood products are increasingly seen as answering these criticisms. The metal exhibits a high strength-to-weight ratio, it can accommodate longer spans, and it is lighter to handle in the field. It can be purchased to specific lengths, minimizing job-site scrap. And it is noncombustible, is immune to insect pests, and can be stored indefinitely.

Steel is a versatile framing material, but fastening techniques vary from wood.



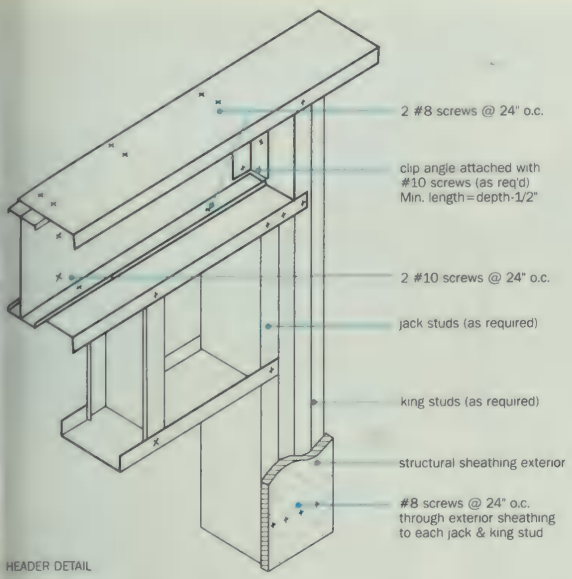
Stable and consistent, isn't steel better?

Does a homeowner need to worry about rust? Generally not, if the metal is galvanized, says architect Eric Lund of the National Association of Home Builders Research Center. The zinc coating will protect the metal, and zinc is self-sacrificing, meaning that it will react with water before the steel can. Power tools, such as electric shears, cut light-gauge steel in such a way that the galvanizing is essentially pulled over the exposed edge. Cuts from other tools and penetrations from screws can remove a small portion of the galvanized coating, but the adjacent zinc should prevent rust from spreading.

Still, metal-framing members in some large buildings have rusted to failure where they sat in leaked water and where the salty air in marine climates attacked the metal. There are currently too few low-rise residential projects framed in steel to know if the exposure is comparable.

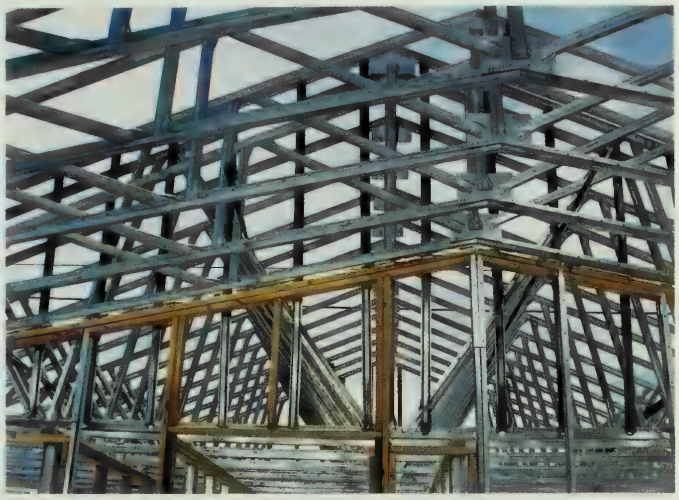
Typically, light-gauge steel is covered with a zinc coating thickness designated G-60. Along the coast, the designer should specify the thicker G-90 or greater. Builders must also take precautions to avoid galvanic action, the corrosive effect that occurs when two dissimilar metals (such as steel and copper pipe) come in contact with each other.

Using metal studs for wall- or ceiling-hung items requires some adjustment for the homeowner. Heavier objects must be attached to a framing member with screws, not nails. (A magnet makes finding metal studs easy, though.) "Steel-framed houses may rattle while still under construction, but not once con-



HEADER DETAIL

Manufacturers have forged agreements to standardize strengths and sizes, permitting ordinary metal-framing design using load tables.



leted," reports George Richards, principal of BORM Associates, an engineering firm in Irvine, California. The sound is absorbed by the drywall, ie explains. The differences between the sound-transmission coefficients STC) of wood and steel assemblies are negligible, according to the ypsum Association's rating system.

letal's thermal drawbacks

teel has much to offer from an environmental point of view: it has substantial recycled content, is itself easily recycled, does not off-gas or equire chemical treatment for termites, and minimizes cracks due to rinking or warping, thus preventing energy-consuming air leaks. Ecolo-

STEEL IS DIMENSIONALLY STABLE AND IS LIGHT, HAVING A HIGH STRENGTH-TO-WEIGHT RATIO. IT CAN BE PURCHASED TO SIZE, MINIMIZING JOB-SITE SCRAP.

ically speaking, however, its one glaring weakness is thermal bridging. nlike wood, steel is very effective in transferring heat, which compromises the effectiveness of batt insulation installed between studs. ccording to the 1995 Model Energy Code, which is referenced by the ree model codes, the effective R value of R-11 cavity insulation is alved, to 5.5, in a wall framed with 16-gauge 2-by-4 steel studs spaced 16 ches on center. During winter, heat more readily travels through an nsulated steel stud to the outdoors, resulting in cold spots on the side wall surface. This can lead to higher heating bills, condensation and old growth on the inside face of the drywall, and vertical ghosting or scoloration on the interior walls as dirt and dust adhere. In summer, wanted heat can enter from outside, increasing air-conditioning loads id, in humid regions, exacerbating condensation potential.

The industry recommends sheathing the outside of metal studs ith a rigid-board insulation such as extruded polystyrene, expanded olystyrene, or polyisocyanurate foam. "This forms an effective thermal eak and increases R values significantly," according to AISI's *Thermal esign Guide for Exterior Walls,* published in January 1995. According to ecent paper by the NAHB Research Center, initial research indicates that steel may have much lower insulating value for roof, ceiling, and floor assemblies compared to similar ones framed in wood. But this research has yet to be codified and therefore little guidance is available for the proper insulation of these components.

According to the most recent Department of Energy (DOE) Insulation Fact Sheet, prepared by Oak Ridge National Laboratory, metal-framing members should be insulated even in the warmest parts of the U.S.—where batt insulation in the cavity wall may be unnecessary—to avoid ghosting. (The 1997 fact sheet is available through DOE's Energy Efficiency and Renewable Energy Clearinghouse at 800/363-3732.) The document also suggests that continuous insulative sheathing may be appropriate between metal joists and ceiling drywall to reduce heat loss. "Those joists go right to the eaves," explains Therese Stovall, a researcher at Oak Ridge. "They are perfect fins. You couldn't design a better heat exchanger." Insulating the attic diminishes heat transfer to the roof but doesn't improve the radiative effect of the eaves. Since attic rafters or trusses may also conduct heat out, it may be prudent to sheath the roof in rigid-board insulation as well.

Alex Wilson, editor of *Environmental Building News* in Brattleboro, Vermont, lists the disadvantages of the insulating boards commonly used: "They are more expensive than cavity insulation, they are developed from a petrochemical base, and all but expanded polystyrene are made using HCFC blowing agents. These deplete the stratospheric ozone layer and are slated for phaseout early in the next century." Fiberglass batt insulation does not share these drawbacks. Wilson sees steel's usefulness primarily as an interior framing material.

New products claim to improve steel performance at lower environmental cost. U.S. Building Technology (USBT) in Natick, Massachusetts, has developed Snap-Cap, a rigid foam that hugs only the exterior flange of the stud. Several thicknesses will be available beginning in

October. Insul-Stud—a steel stud onto which similar insulation is adhered at the factory—is expected to be available in 1998. The company claims that these two products can reduce the amount of rigid foam needed by more than 80 percent while still providing the necessary thermal insulation. Joseph A. Charlson of USBT estimates that the products will reduce the cost to insulate a wall by 25 to 50 percent. The Snap-Cap product can also attach to the face of roof-truss members and the bottom face of floor joists.

Bringing framing costs down

Though steel framing has become common in commercial buildings, it still costs more to frame a house in steel than in wood. Wayne Parker of Parker Engineering in Redding, California, estimates that a 1,500-sq-ft wood home actually costs $2,000 more in steel. A small and inexperienced

STEEL'S ECOLOGICAL WEAKNESS IS ITS POOR INSULATING QUALITIES.

supply of framers and other subtrades is largely to blame. And, once in the field, framers find that fastening techniques are generally slower than those for wood. Says Parker, "The commercial drywallers who do a lot of light-gauge framing for commercial office partitions and curtain walls don't necessarily know how to build a house." Residential applications differ: walls are more often load-bearing, requiring greater attention to sizing and attachments. And the complex shapes and roof geometries of houses are not often found in the commercial sector. Commercial framers also command a higher labor rate.

Until very recent building-code changes, steel framing had to be designed by an engineer. Since few design professionals are well versed in the technology, many projects are simply overdesigned and therefore not cost competitive. "The engineers need to know how to specify as light as possible so everyone else can do their jobs as easily as possible," explains Walker. "For example, a mere 1/8-inch increase in the diameter of an anchor can double the difficulty of drilling. There is an art to knowing how to make it user-friendly."

Progress in code acceptance

Code officials, lacking familiarity with metal-framing techniques, have also hindered acceptance. But an infrastructure is beginning to develop around the material. The NAHB Research Center has prepared a prescriptive method for residential steel framing under the auspices of the U.S. Department of Housing and Urban Development with additional funding from NAHB and AISI. It provides detailed guidance so that ordinary metal structures, like wood ones, can be designed without the assistance of a design professional. The prescriptive method was published in May 1996. The Council of American Building Officials (CABO) One and Two Family Dwelling Code has accepted the wall and floor portions of this method. Rafter standards are being considered by CABO this fall. According to AISI's Northeast regional director Jonathan Humble, based in West Hartford, Connecticut, about half of the states in the U.S. have adopted the CABO code in some fashion. None of the code's steel-framing standards are currently applicable to areas subjected to strong seismic activity or high wind forces.

In the process of developing the prescriptive method, the roll-forming industry, which fabricates the basic steel members, agreed to standardized shapes, thicknesses, coating thicknesses, and yield strengths. In the past, these could vary among manufacturers. The roll formers adopted the same dimensions as lumber for the web depth of wall studs,



Builders are mixing metal and wood, though differing characteristics, such as wood shrinkage, must be taken into account.

so a nominal 2-by-4 will now be 1 5/8 by 3 1/2 inches and a nominal 2-by-6 will be 1 5/8 by 5 1/2 inches. "This is very important if the product is going to be compatible with window and door frames manufactured for the U.S.," says Walker.

In addition, the CABO code stipulates that steel be labeled by manufacturer, minimum uncoated metal thickness, yield strength, and thickness of galvanized coating. "All the studs in light frame will have a pedigree so there will be accountability. This allows contractors to use the product with confidence," continues Walker.

In another recent code development, architects and engineers will have greater options in providing lateral resistance to wind and earthquake loads. In the past, the building codes recognized only steel-strap bracing for lateral resistance. Shear values for attaching plywood, oriented-strand board, and gypsum board to steel framing are now included in two of the three model codes: the 1997 Uniform Building Code and the 1997 Standard Building Code. A similar approval is pending with the National Building Code.

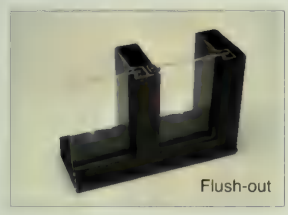
AISI sponsors a steel hotline (800/79STEEL), which is run by the NAHB Research Center, to answer any questions about the use of cold-formed steel in residential applications and to make available a recently developed series of technical data sheets. Tool and product manufacturers have begun to develop methods to speed installation. Innovations include improved sawblades that cut steel more quickly and quietly; pneumatically driven pins to attach sheathing products to steel framing; and hand-held clinching devices that quickly join steel members without screws or pins. (Pins have the same basic geometry as nails but are made of high-carbon steel and are heat treated so that they can pierce steel framing without buckling. They also have a ballistic point and a special texture on the shank, called knurl patterning, both of which improve the pin's grip on the the stud.)

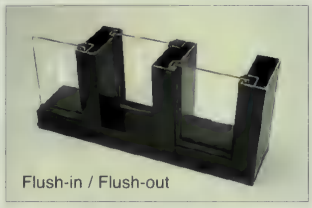
Though entirely steel-framed houses account for a fraction of all those built, steel may make inroads in combination with wood. A developer may opt for cost-effective wood trusses supported by steel-stud walls, for example. Or an engineer may feel more comfortable with wood walls in load-bearing applications and light-gauge steel elsewhere. Framers may build complicated stairs out of wood in an otherwise steel-framed house because carpet installers prefer to fasten tack strips to wood. And a wood header may span an opening in an otherwise metal-framed structure because the architect wants the material to be exposed. The builder or designer must recognize such differences as wood's tendency to shrink as it dries. Steel won't. ■

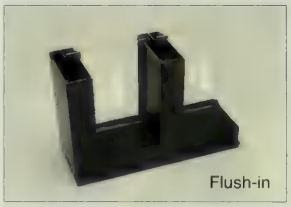
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NEW PRODUCTS

October's product coverage features a perforated-metal ceiling assembly made with a new forming machine that lowers the cost of custom-curved panels. A page on Division 2 products—site furniture and amenities—includes new colors in an old paving product: asphalt block made on a high-pressure steam press that was built in 1888. The Product Briefs page has a fan- (and fanny-) pleasing stadium seat, a design-your-own-escalator CD-ROM, and a "hurricane-proof" garage door. Want to know how to specify sealants correctly? See the Literature pages.
—Joan F. Blatterman, New Products Editor

NEW METAL-FORMING TOOLS PRODUCE A CURVACEOUS CEILING

Ceilings Plus in Los Angeles used 60 years of sheet-metal experience in creating Radians, a curved-metal ceiling introduced to the architectural market in January. With this new system, integrally formed curved returns are set into the panels in a way that strengthens them sufficiently to permit large individual panel dimensions, which in turn reduces the number of joints in a given ceiling.

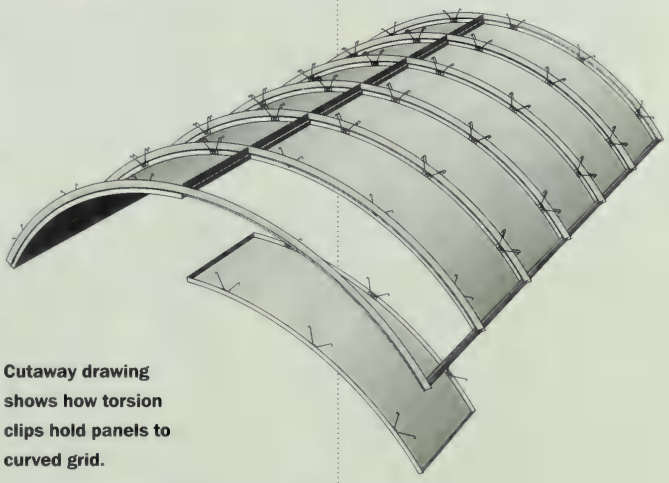
Company president Nancy Mercolino claims that the firm's proprietary computerized, numerically controlled metal-forming technology can curve panels and form edge returns without creating dimples, waves, oil canning, or other visual distortions in the face of the panel. The crimps in the returns are evenly spaced and stop short of the surface plane so dents and dimples are not visible from within the space. The return bends are 1 1/2 in. deep, stiffening even tightly curved sheets half or a third of what conventionally fabricated curved panels might cost, according to Mercolino.

Design capabilities

A standard Radians panel is 2 or 2 1/2 ft wide and can be specified in lengths up to 10 ft. The convex or concave radius can be anywhere from 6 to 200 ft; different radii can be combined to create serpentine, vaulted, or undulating shapes. Finish options include round and square perforations in various patterns to suit specific acoustic or light-distribution needs. Panels can be ordered in aluminum, stainless steel, or painted steel in solid-color or metallic finishes.

Each panel is mechanically attached to a concealed steel grid with torsion-spring clips and can be swung down to access plenum space as needed. The Radians ceiling meets the most stringent Zone 4 seismic codes.





Cutaway drawing shows how torsion clips hold panels to curved grid.

enough so that no welds or other fasteners are needed to maintain the contour.

Eliminating costly hand labor takes a lot of the expense out of creating custom ceilings, including those with complex, undulating configurations. Made with lighter-gauge metal, the panels can be priced at a

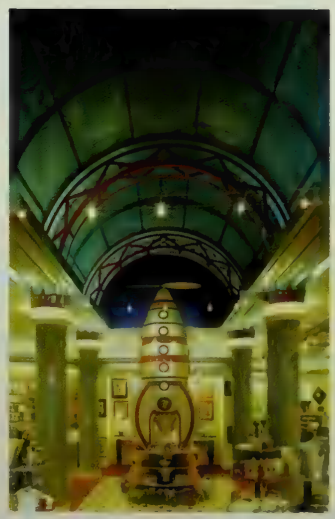
The computerized manufacturing process is said to insure a relatively short lead time on even the most complex projects. For example, DPA Architects, Inc., of Tempe, Arizona, converted a tilt-up concrete warehouse into office space for the Dial Corporation in just six months, including a custom, 11,000-sq-ft ceiling (below left). Indirect lighting of the huge, computer-intensive back-office space was an objective of project architect John Szafran, who designed a vault 40 ft wide by 300 ft long that brought the ceiling height down without loading the roof structure. (Gypsum board, originally considered, would have been too heavy for the warehouse's frame.) Light from 400W metal-halide SPI pendants is reflected off the perforated panels, which have a white-colored acoustic backing to dampen conversation noise.

The ceiling floats above decorative drywall arches that visually divide work zones and step the vault up incrementally from 14 to 20 ft. Individual panels 7 ft long arch end to end across the 40-ft-wide span; panel joints are only 1/16-in. wide and almost disappear, giving a monolithic appearance to the completed ceiling.

Barton Choy Architects used Radians panels in an exposed grid system, another suspension option, to create a tightly curved ceiling in a retail space (right).

Sales support

A sample kit provides perforated-metal pieces to suggest the design possibilities of various open patterns and finishes. The company will supply full-scale mockups to demonstrate how the suspension and attachment components work and to show the smooth, consistent character of the finished panel. 800/822-3411. Ceilings Plus, Inc., City of Commerce, Calif. CIRCLE 250



NEW EMPHASIS ON OUTDOOR FURNISHINGS

A trend in landscape amenities like benches and ash urns is that there seem to be more of them nowadays. As smoking prohibitions prod smokers outside, building managers feel compelled to provide a few benches to create an attractive setting instead of just letting employees huddle around doorways. And thanks to a new generation of UV-resistant powder coatings, furniture can be coordinated with architectural trims and hard surfaces or provide a colorful accent. A good place to see new pavings and site furnishings is the annual meeting of the American Society of Landscape Architects, November 8–10 in Atlanta.—*J.F.B.*



▲ Comfortably correct

Arlington benches have a contoured seating area laser-cut from a single sheet of 1/4-in.-thick steel to replicate the effect of individually wrought straps. A supportive curve to the back and a gradual waterfall treatment of the seat edge add ergonomic comfort; an intermediate armrest can be specified to prevent campouts. 205/997-5207. Ultrum/GameTime, Inc., Fort Payne, Ala. **CIRCLE 251**

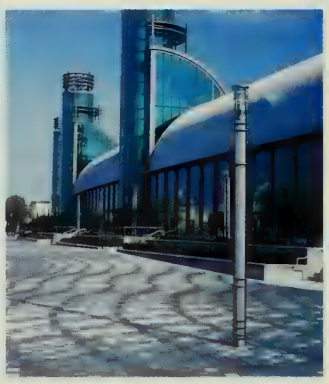
► Bench as bridge

Set on an arched frame that resembles an inverted Golden Gate, the 72-in.-long, 19-in.-high Bridge bench is scaled for use indoors and out. Metal may be specified in stainless steel, as shown, or in a range of powder-coat colors. Prices start at $700, depending on the seat material selected: a choice of wood, concrete, or metal. 800/451-0410. Forms+Surfaces, Carpinteria, Calif. **CIRCLE 252**



▼ Interlocking concrete pavers

A huge plaza fronting Toronto's National Trade Center incorporates integrally colored concrete pavers in an undulating, wavelike pattern created by Virginia artist Jerry Clapsaddle. Paving is made of high-compressive-strength 8-in. squares of concrete 2.3 in. thick set in sand, creating a permeable surface that is extremely resistant to heavy traffic loads, freeze/thaw cycling, and de-icing salts. A video and design software are available: 800/241-3652. Interlocking Concrete Pavement Institute, Sterling, Va. **CIRCLE 253**



► Problem-solving planters

To create a garden on the roof of the new San Antonio Library, architect Ricardo Legorreta used lightweight planters with a low-maintenance built-in irrigation system. Customized planters and liners are offered to solve interior and exterior plantscaping problems. 800/542-2282. Planter Technology, Mountain View, Calif. **CIRCLE 254**





▲ Traditional American style

Made in a historic Virginia foundry and designed to stay in a garden or courtyard all year long, this camelback four-seat bench is crafted in wrought iron, then powder-coated in black, as shown, or in white, green, taupe, bronze, or pewter. 804/358-2385. McKinnon and Harris, Richmond, Va. **CIRCLE 255**

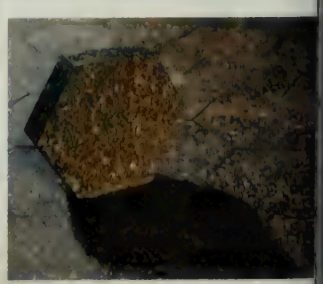
▼ Du temps perdu

John Danzer fabricates classically detailed garden furniture, orangerie boxes, urns, and other pieces inspired by the historic homes and landscapes of the Hudson Valley, but this settee echoes one bought by Edith Wharton for her home in Ste. Claire du Chateau, France. 212/717-0150. Munder Skiles, New York City. **CIRCLE 257**



▼ Easy on the feet

Made on a 100-year-old steam press, hexagonal or square asphalt pavers come in natural aggregate colors that disguise stains and provide a comfortable walking surface. 800/426-4242. Hanover Architectural Products, Hanover, Pa. **CIRCLE 258**





◄ Chilling out

Designed by Kipp Stewart and built by his son Brad, new Poolside furniture can cross over from residential use to the more rugged requirements of resort, club, and hotel settings. Pictured is the Wide Arc lounge chair and matching ottoman constructed from extruded aluminum finished in an automotive-type powder coat in bronze or pewter, upholstered in Sunbrella weather-resistant fabric. Dining chairs, glass-top tables, chaises, and bar stools are also offered in Stewart's updated-Moderne styling. 415/431-8386. Bradford Stewart & Co., San Francisco. **CIRCLE 256**

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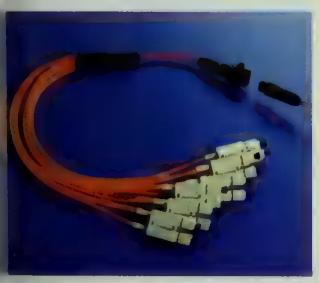
◂ Clang-free storage locker

Described as "an upscale locker alternative," the Famous locker can be specified in a range of materials, including the solid wood shown, as well as veneers and plastic laminates, for the storage needs of schools, clubs, and fitness centers. Doors and interiors can be customized for specific equipment, such as golf clubs or skis. 847/524-6926. Famous Lockers, Schaumburg, Ill. **CIRCLE 261**



▾ Open-office cabling

Flexible Netconnect zone-cabling power and data-distribution systems are said to make it easy to add new users or to reconfigure equipment within a modular, open-office environment. "Plug-and-play" components include Lightray fiber-optic connectors (below), which deliver the full bandwidth of optical fiber. In the space of a traditional single-user cable and connector, the Lightray system provides up to 6 fiber pairs to connect desktop equipment such as computers and fax machines. 800/835-7240. AMP Incorporated, Harrisburg, Pa. **CIRCLE 259**



▴ Custom column covers

A new product line for Fry, these column covers can be curved to meet an architect's exact specification. Available in stainless, aluminum, Muntz metal, or painted galvanized, they are formed on a pyramid rolling press. There are two reveal styles: a 1/2-in. vertical joint and a "v" butt joint; a "seamless" cover needs field finishing. 800/237-9773. Fry Reglet Corp., Alpharetta, Ga. **CIRCLE 262**

▾ Interactive escalator design

Free drawing tools eliminate manual escalator and elevator detailing and offer realistic equipment and space parameters. Download at http://www.US.Schindler.com or request the CD-ROM. 201/984-9500. Schindler, Morristown, N.J. **CIRCLE 263**



▴ Simple shape with character

Rugged enough for use in hospitals, colleges, and hotels, these table and floor lamps are tapered columns of American cherry, maple, and oak finished in ivory, burgundy, and green. All metal parts are solid brass. 805/966-7536. Stellar Lighting, Santa Barbara, Calif. **CIRCLE 265**

▾ Storm-proof sectionals

Roll-lite upward-acting sectional and sheet-style doors, shown here undergoing wind testing, meet SSTD-10-93 (hurricane-resistant residential construction) of the Standard Building Code. Commercial applications include airplane hangars, storage buildings, and workplaces. 407/857-0680. Roll-lite Storage Systems, Orlando, Fla. **CIRCLE 266** ■

▾ Sidewalk/driveway sealant

For concrete flatwork and other paving in architecturally sensitive areas such as walls, Lithoseal Trafficalk seals horizontal joints in any of over 100 colors. The caulk is said to perform with excellent adhesion and elongation characteristics and to withstand solvents. 800/800-9900. W. M. Scofield Co., Los Angeles. **CIRCLE 260**





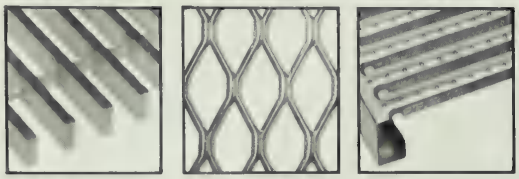
▾ Part of the fan experience

Hussey employed an ergonomics consultant and focus groups to develop the user-comfort program for the new Medallion chair. A sleek, contemporary style (the company also makes a Legend chair for nostalgic-theme baseball parks), the chair can be ordered in widths up to 24 in.; seats are self-rising to achieve code-compliant row distances. Comfort features include lumbar support, a "pelvic brake" that prevents users from sliding forward in the seat, and contoured edges that let legs move easily. Available in 24 standard colors. Hussey Seating, North Berwick, Me. **CIRCLE 264**



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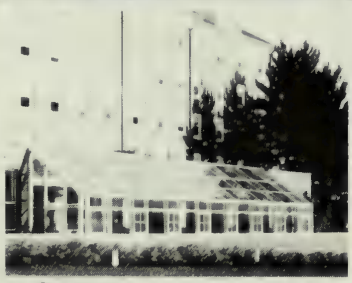
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PRODUCTLITERATURE

Custom site furniture

An illustrated folder highlights design, engineering, and custom-manufacturing capabilities offered to meet specific project requirements for tables, benches, and amenities built to architectural specifications. Constructed of solid wood using boatbuilding techniques, the furniture may be finished in any of over 60 Awlgrip paint colors. Weatherend Estate Furniture, Rockland, Me. **CIRCLE 267**

Concrete-materials guide

Full-line catalogs provide selection and application information for such concrete products as grouts, levelers, fast-set mixes, and hydraulic cement, as well as elastomeric, acrylic, and cementitious coatings for masonry substrates. A "Thermal and Moisture Protection" catalog covers the Surewall EIFS product line, which includes a fiber-reinforced stucco. 800/334-0784. W. R. Bonsal Company, Charlotte, N.C. **CIRCLE 268**

Display and aeration fountains

Vertex water features, illustrated in an eight-page brochure, are attention-getting water displays ranging from the small FunnelJet, a ring of sparkling water 25 ft wide but only 5 ft high, to dramatic multiple columns of water jetting 50 feet in the air. The fountains float on the surface, and can be ordered complete with lights for night-time illumination. Besides adding a focal point to man-made lakes or runoff-water sumps, these fountains add oxygen to the water and prevent the growth of algae and mosquito larvae. Vertex, Division of Aquatic Systems, Inc., Deerfield Beach, Fla. **CIRCLE 269**

Curtain-wall details

Responding to suggestions from architects, Vistawall, a manufacturer of curtain-wall systems, storefronts, and sloped-glazing assemblies, offers product information in free electronic formats. A CD-ROM, the Detailer, lets designers transfer standard details to project drawings; a new Web site (www.vistawall.com) supplies a downloadable version of the Detailer, three-part specifications, installation profiles, and links to related sites. 972/424-1951. Vistawall Architectural Products, Terrell, Tex. **CIRCLE 270**

Public-area seating

A catalog on Kenworthy wood benches includes the southwestern-influenced Cimmaron and a Prairie design. Furniture may be specified in red oak, maple, and jarrah for interior applications; benches for outdoors come in jarrah with a clear sealer intended to weather to a warm gray. 800/521-2546. Landscape Forms, Inc., Kalamazoo, Mich. **CIRCLE 271**

Traditional-style amenities

Found in sites from the Faneuil Hall Marketplace to Ellis Island, a classic bench is made with cast-iron standards and slats of solid hardwood. A four-page brochure illustrates seating, matching trash receptacles, and clocks. 800/378-3080. American Site Furniture, Concord, Mass. **CIRCLE 272**



PRODUCTLITERATURE



Unabridged hardware

The Complete Häfele has over 1,000 pages on decorative hardware, furniture locks, shelf supports, hinges, slides, TV swivels, pocket-door fittings, kitchen accessories, closet and office hardware, and furniture lighting. Prepared for cabinet makers as well as architects and interior designers, every item is illustrated with dimensions and application details. 910/889-2322. Häfele America Co., Archdale, N.C. **CIRCLE 273**

Sealant-design software

The Sealant System, a Windows-based program, was developed in conjunction with the National Research Council of Canada to help design joints and pick sealant products in new-building construction. Working from a database containing temperature data for cities across Canada and the U.S., physical characteristics of most common building materials, and an index of sealants from major North American manufacturers, the program calculates joint-movement factors and produces a list of appropriate products. Special criteria such as mildew resistance can be factored in. Preview the program at www.innovative.ca (Web page). 613/741-0050. Innovative Technology, Inc., Ottawa. **CIRCLE 274**

Wallcoverings manual

Written to teach design students about wallcoverings, the *Commercial and Residential Wallcoverings Reference Manual* covers the topic thoroughly, with chapters on different printing techniques; correct installation; fundamentals of pattern, color, and texture in wall treatments; and listings of industry sources and associations. Slides are supplied to illustrate key points. Single-copy price: $39.95. 312/644-6610. Wallcoverings Association, Chicago. **CIRCLE 275**

Fire-rated glazing options

The newest SpeciFIRE, available without charge, is a slide chart that matches six proprietary fire-rated glazings, including safety-rated FireLite NT and Pyrostop transparent wall panels, with dimensional and rating information. 800/426-0279. Technical Glass Products, Kirkland, Wash. **CIRCLE 276**

Western Red cedar reference

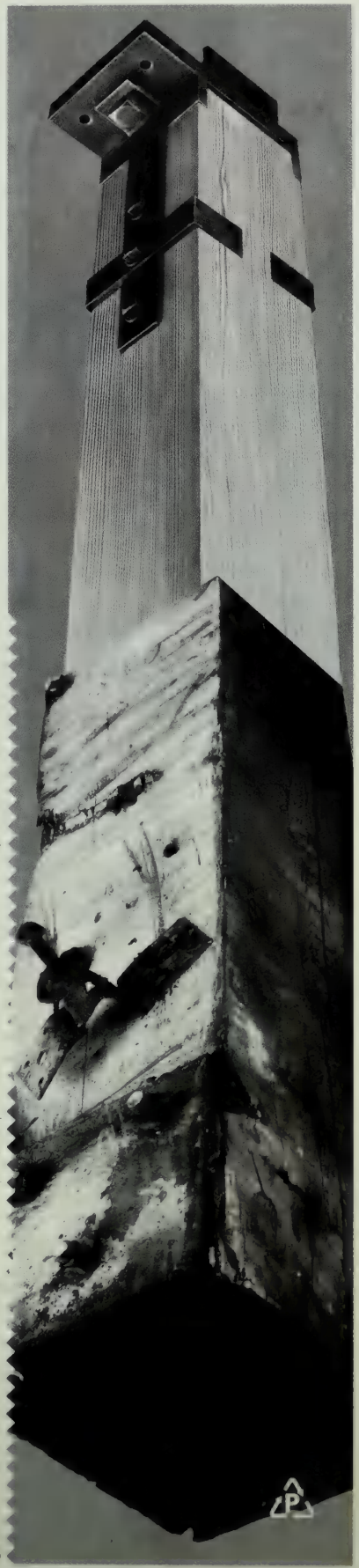
In binder format, a specifiers' guide holds sections on using Western Red cedar for siding, decking, trim, fencing, interior paneling, timbers, or landscape structures. $15 charge includes automatic updates. 604/684-0266. Western Red Cedar Lumber Association, Vancouver, B.C. **CIRCLE 277**

Classroom furniture

Diamond Series chairs and tablet-arm desks are made of a new ABS plastic said to be stronger and lighter than conventional hard plastics often used for classroom furniture. Ergonomically designed molded seats, backs, and work surfaces, assembled on steel frames, are illustrated in a six-page product brochure. 800/257-6390. Fleetwood Group, Inc., Holland, Mich. **CIRCLE 278** ■

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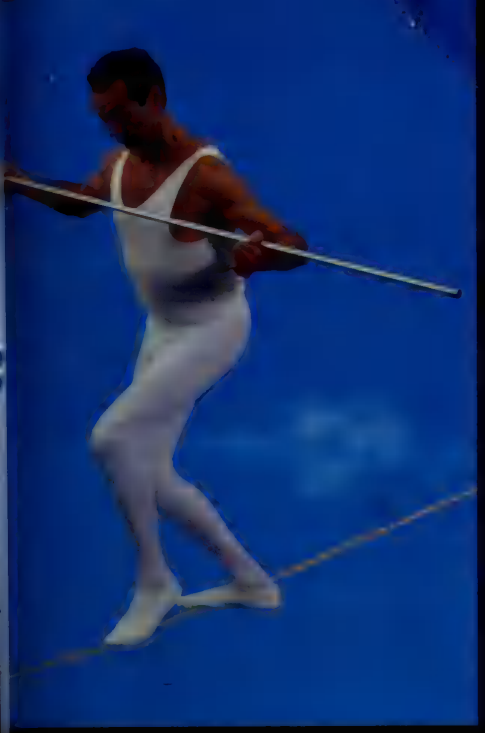
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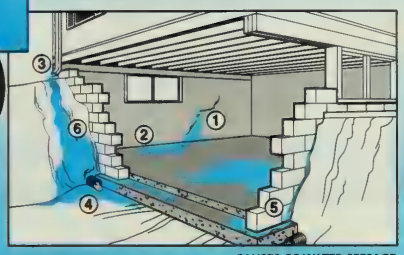
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(continued from page 20) thing. In an age of architectural senselessness, I think this chapel should be an inspiration for architects and students alike.
—Carwel Dera
Everett, Mass.

Thank you for enriching us all with your article about Steven Holl's chapel. Through the use of light, his approach to creating a place of worship has succeeded. There is, however, an exquisite detail that was omitted from the story: the handrail leading to the white cedar baptismal. Your next article on the subject of religious buildings should include a view of what I consider simple, perhaps austere, faith-inspiring details.
—Juan Llobet, AIA
Port Angeles, Wash.

Clarifications: where credit is due
Your article regarding the creation of the Memphis Center for Architecture [August 1997, page 34] inaccurately referred to the collaboration of Coleman Coker with the University of Tennessee. The center was formed through an equal partnership between the University of Arkansas and the University of Tennessee. Dean Daniel Bennett of Arkansas and I worked together to help establish the center; we have been very gratified by the strong support of the local professional community.

Dan Bennett and I approached the creation of the center in an entrepreneurial spirit, as one way of continuing to diversify the educational experiences available to our students. Furthermore, the center itself, as you reported, should be an important bridge to the professional community in Memphis.
—Marleen Kay Davis, Dean
College of Architecture and Planning
University of Tennessee
Knoxville, Tenn.

A news item in the July 1997 issue [page 27] refers to the International Design conference held in Jackson Hole, Wyoming. We were pleased to see mention of the conference in your magazine but sorry that certain information was missing. Your article lists the event's cosponsors, Steelcase and *Fortune* magazine, but does not make mention of the host: the International Interior Design Association (IIDA).
—Karen Guenther, FIIDA, President
International Interior Design Association
Chicago

RECORD may edit letters for grammar, style, and space availability, taking care not to change the author's meaning.

Corrections
In the July 1997 issue [page 84], the lead architect of the veteran's housing project was referred to inaccurately. The firm is Fei & Cheng Associates Architects and Planners.

Due to erroneous information published in a press release, a news story on the Lester B. Pearson International Airport in the July issue [page 26] misreported that Skidmore, Owings & Merrill had worked on Hong Kong's Chek Lap Kok and London's Heathrow airports. These airports were designed by Hellmuth, Obata + Kassabaum.

Due to a misunderstanding in the editing process, Diehl Graphisoft's MiniCAD was mischaracterized in "Getting Your Feet Wet in CAD" [July 1997, pages 129–32]. It was grouped with entry-level, 2D-only programs, but though it has an entry-level price, it is an integrated 2D/3D general-purpose, cross-platform product and can be usefully compared to DataCAD or ArchiCAD. The image of AllPlan in the same CAD article [page 129] was inadvertently printed upside down. RECORD regrets the errors. ■

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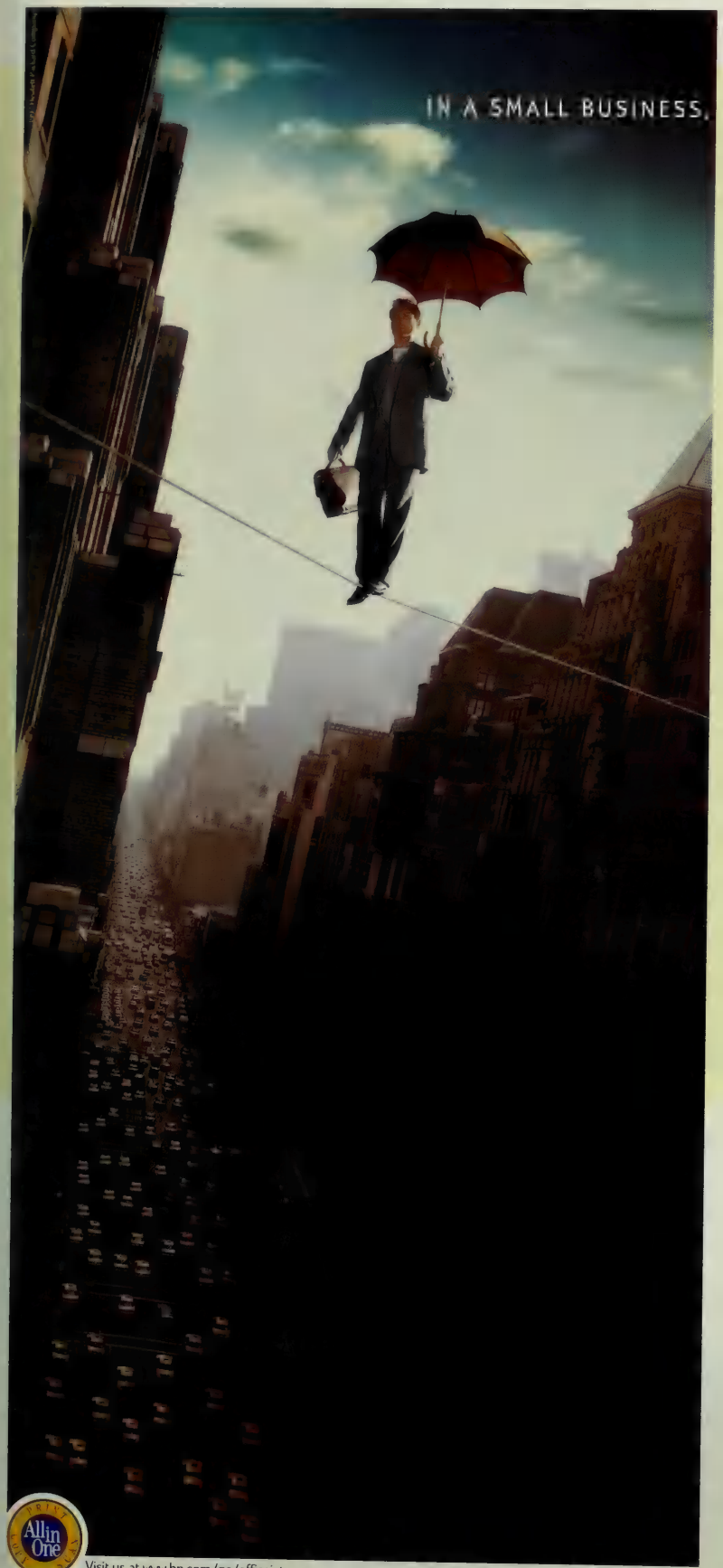
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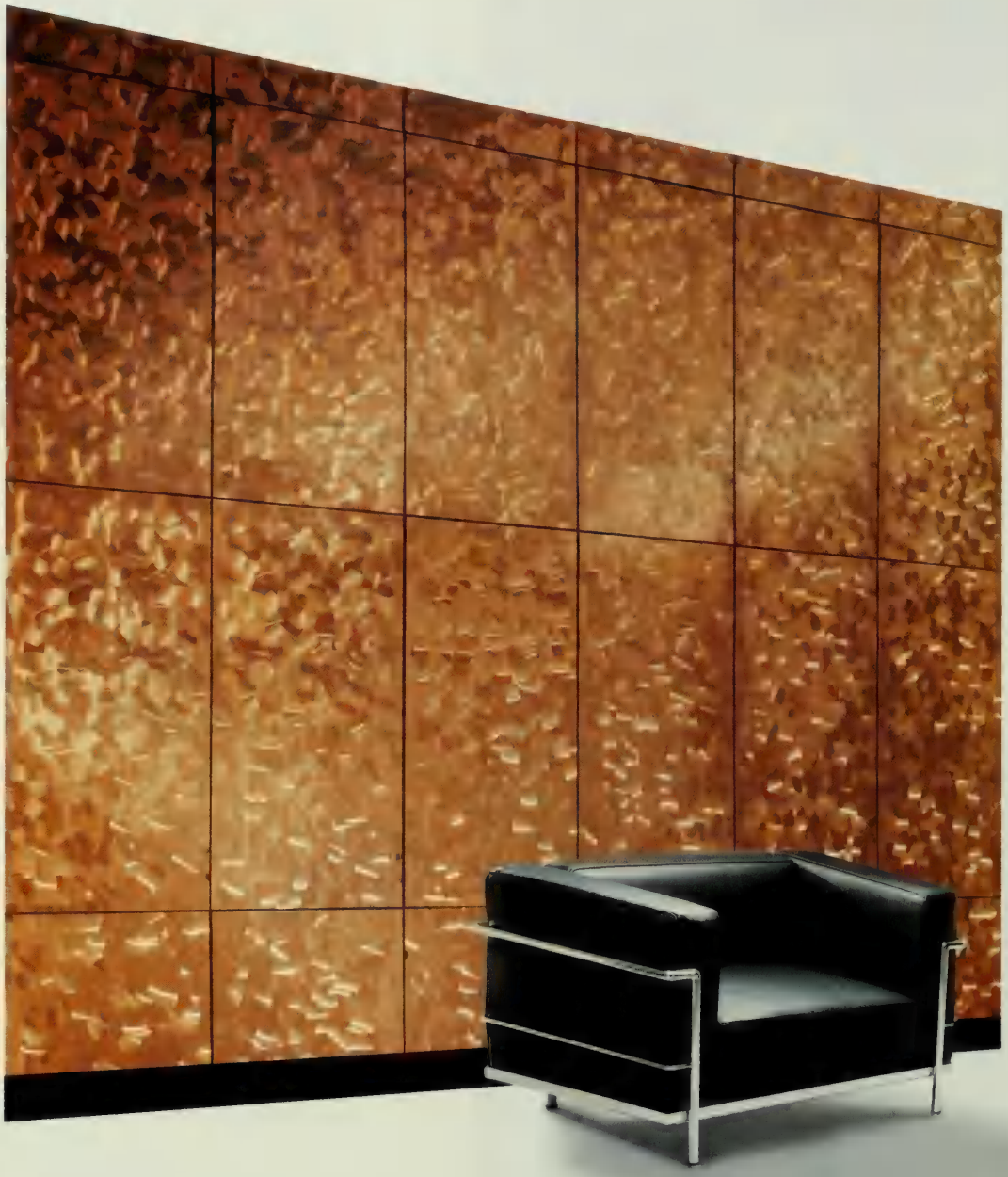
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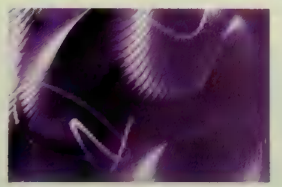
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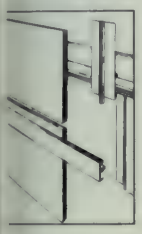
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(continued from page 42) Department of Energy. Call the AIA's PIA line at 800/242-3837.

November 20–23
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San Diego, California
Educational sessions and a new product exhibition will be offered at the Center for Health Design's Tenth Symposium on Healthcare Design. Contact Center for Healthcare Design, 4550 Alhambra Way, Martinez, Calif. 94553; call 510/370-0345; or E-mail CTR4HD@aol.com.

Through November 25
Chicago Architecture Foundation
Chicago, Illinois
"SOM at Sixty" is a show of 200 models developed over the past 15 years by Skidmore, Owings & Merrill. Call 312/922-3432.

Through January 11, 1998
Cooper-Hewitt Museum
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"Design for Life: A Centennial Celebration" takes a look at "the central role design plays in our lives." Call 212/860-6894.

Competitions

The **London/UK Chapter of the AIA is sponsoring its Fourth Annual Excellence in Design Awards**. The program recognizes work, both built and unbuilt, in any location by U.K.-based architects or by architects outside the country who have a project in the U.K. Contact Karen Cook, Kohn Pedersen Fox, 13 Langley Street, London WC2H 9JG; fax 011-44-171-497-1175; or E-mail Kcook@KPF.co.uk.

New, restored, or rehabilitated theaters of any size, located anywhere, and completed after January 1, 1988, may be entered in the **1998 architecture awards program sponsored by the United States Institute for Theater Technology**. Submissions, due November 10, should be sent to Architecture Awards, USITT, 6443 Ridings Road, Syracuse, N.Y. 13206. For information, call Timothy Hartung, USITT Architecture Commissioner, at 212/807-7171.

Proposals for advanced study in any area of investigation that will contribute to the knowledge, teaching, or practice of architecture may be submitted to the **Brunner Grants program**. Sponsored by the AIA New York Chapter, the program is open to any U.S. citizen engaged in architecture or a related field who has a background more advanced than is implied by five years of architectural training. Proposals are due November 15. For an application, write AIA New York Chapter, 200 Lexington Avenue, New York, N.Y. 10016; or call 212/683-0023.

The Environmental Design Research Association and the journal *Places* announce an awards program for **environmental design research and practice**. There are two categories of awards: "design research" awards for projects that investigate the relationship between physical form and human behavior; and "place design awards" for completed projects that demonstrate excellence as human environments. Open to designers and researchers in a range of fields, from architecture and planning to environmental psychology and sociology. Deadline for nominations is November 15. Write Janet Singer, EDRA, P.O. Box 7146, Edmond, Okla. 73803; call 405/330-4863; or E-mail edra@telepath.com.

The competition for the **$20,000 James Harrison Steedman Traveling Fellowship** for study/travel abroad is geared to the theme "of water and ground." Candidates must have received a professional degree from an accredited architecture program no earlier than 1989 and must be working for an architectural firm or have at least one year of practical experience. Contact Steedman Governing Committee, Marianne Pepper, Washington University School of Architecture, Box 1079, One Brookings Drive, St. Louis, Mo. 63130; call 314/935-6293; or E-mail Steedman@arch.wustl.edu/steedman/.

The **Great American Main Street Awards,** cosponsored by financial services firm Edward Jones and the National Trust for Historic Preservation, recognizes five downtowns and neighborhood commercial districts each year for their outstanding revitalization efforts. Communities wishing to apply for the program may write the National Main Street Center, National Trust, 1785 Massachusetts Avenue NW, Washington, D.C. 20036; or call 202/588-6140. The entry deadline is November 1.

Books

Abstracting Craft : The Practiced Digital Hand *by Malcolm McCullough. Cambridge, Mass.: MIT Press, 1996, 309 pages, $30.*

Reviewed by Norman Weinstein
Abstracting Craft is a philosophical essay on the computer as a design medium, written by an author who teaches architectural design at Harvard and has produced two widely

respected books, *The Electronic Design Studio* and *Digital Design Media* (with William Mitchell). In his latest book, McCullough suggests that we look at computer-mediated design in the same way we view traditional crafts like pottery or weaving. As he writes, "Our use of computers ought not be so much for automating tasks as for abstracting craft."

This book should be read by every architect, if only for its first chapter, entitled "Hands," which is one of the most thoughtful reflections ever on the complex relationship between the physical act of using a computer and computer-assisted design. McCullough makes a strong case for viewing a skilled CAD user as considerably more than a technically sophisticated mouse-clicker.

The excitement created by the book's opening is somewhat dampened by middle chapters long on theory and short on real-life cases. McCullough's writing is consistently challenging, packed with unconventional design notions drawn from a wide range of disciplines beyond architecture. Not the most graceful of prose stylists, he nevertheless offers a compelling, paradigm-shattering read worth close attention.

Architects making the transition to CAD sometimes pine for the "old days" and remember colleagues "who could make a pencil sing!" McCullough's book, despite its shortcomings, points to a day when we will praise those who can make computers likewise serenade.

Norman Weinstein writes about technology and art for Wired, *MIT's* Technology Review, *and other magazines.*

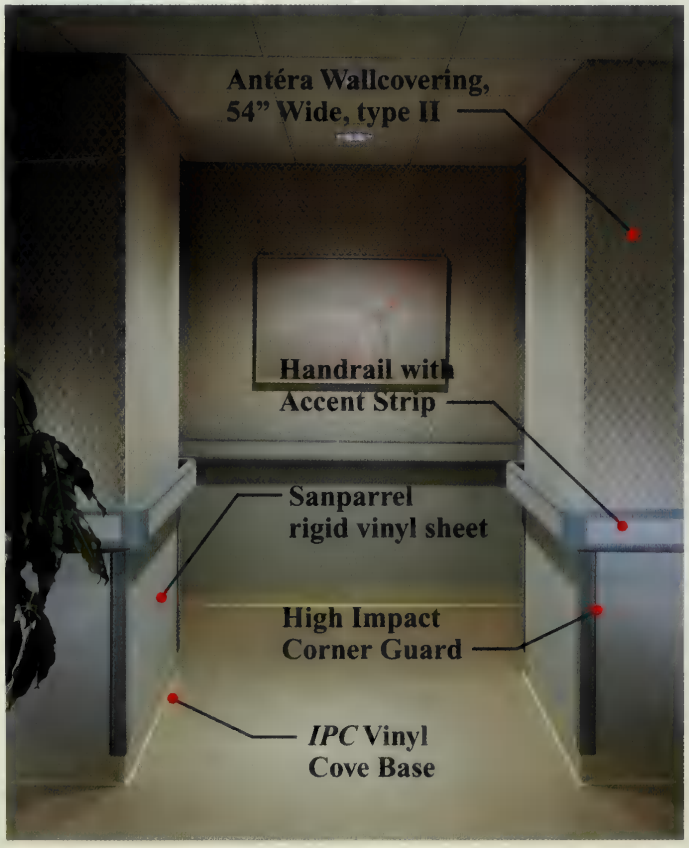
Terra-Cotta Skyline: New York's Architectural Ornament *by Susan Tunick. New York: Princeton Architectural Press, 1997, 175 pages, $45.*

From Louis Sullivan's Bayard Building to Raymond Hood's turquoise McGraw-Hill Building, terra cotta has played a colorful role in New York architecture. But remarkably little has been published on the material. Susan Tunick, who is president of the Friends of Terra Cotta, fills the information gap with this handsomely produced and clearly written book. Sections on terra cotta's history, its manufacture, and its artistic uses are well researched and illustrated with archival photographs and new color photos by Peter Mauss.—*Clifford Pearson*

Snelweg: Highways in the Netherlands *by Theo Baart, Cary Markerink, and Tracy Metz. Amsterdam: Idea Books, 1996, 175 pages.*

Imagine filmmaker Jim Jarmusch, television journalist Charles Kurault, a highway engineer, and a correspondent for ARCHITECTURAL RECORD collaborating on a book and you'll get a sense of what this fascinating production is like. The book is exactly what its title promises and—believe it or not—it grabs, then holds your attention. Photographs by Theo Baart and Cary Markerink, in color and black-and-white, capture the mundane, the bizarre, and the quirky facets of highways in a flat country, everything from aerial views of flyovers to close-ups of teddy bears that the Dutch highway patrol give to children involved in car accidents. The text by Tracy Metz (who indeed is a correspondent for RECORD) covers equally unusual ground: from interviews with the straitlaced civil engineers who design and maintain highway tunnels to quotes from motorists who have struck up momentary flirtations with other drivers going 100 kilometers per hour. There are also fun facts on the percentage of Dutch land occupied by highways, the history of Dutch highways, and the top 10 traffic jams in Holland in the first quarter of 1996. The book is designed in a snazzy Euro style with yellow and white type on blue paper, a matte finish, and several gatefold spreads.—*C.P.* ■

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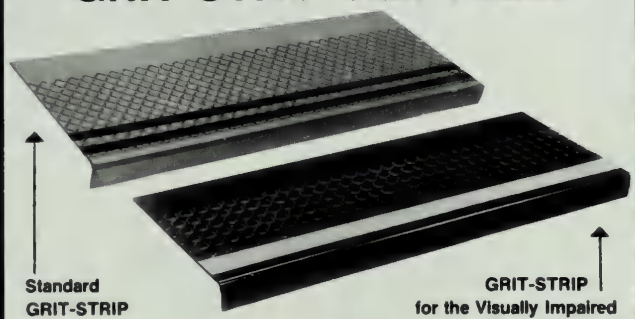
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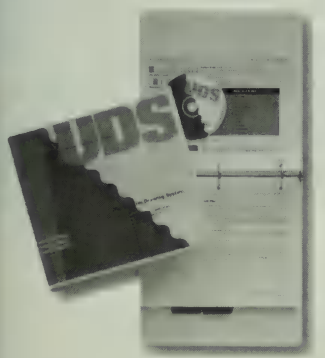
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bmissions should be mailed to: **KAREN D. STEIN** ◆ **RECORD INTERIORS** ◆ **ARCHITECTURAL RECORD**
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AIA/ARCHITECTURAL RECORD CONTINUING EDUCATION

INSTRUCTIONS

- Read the article "The Maturing of Metal Framing" (pages 133–36) using the learning objectives provided to focus your study.
- Complete the questions below, then check your answers (top of page 162).
- Fill out the self-report form on page 162 and submit it to receive two AIA Learning Units.

—Mark Scher, AIA Director Professional Education Products and Services

Questions

1. Outline three methods of residential steel construction.

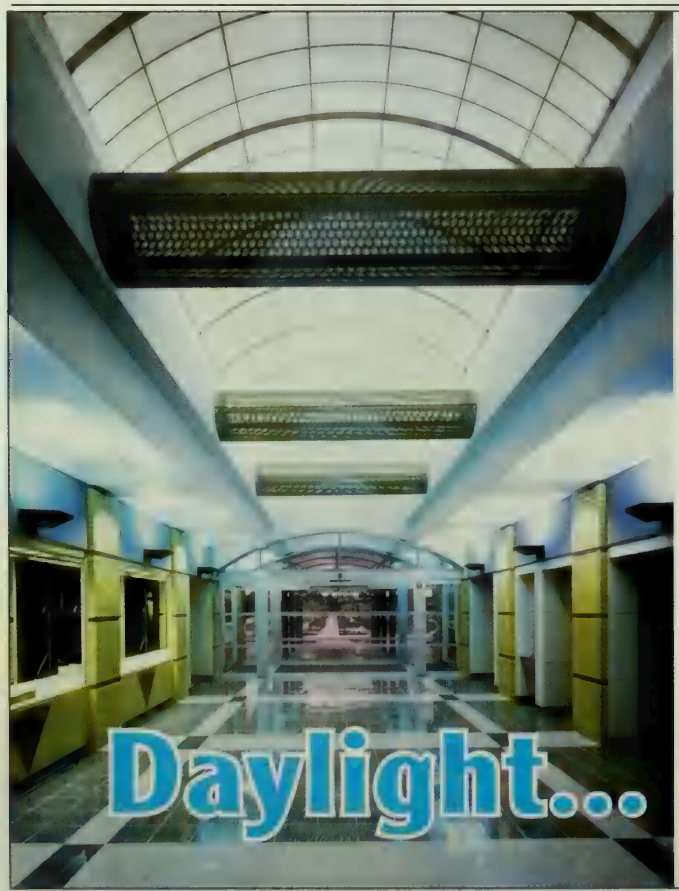
2. List the economic, structural, utility, and environmental reasons for designing steel framing in residential settings.

3. Beyond heat-transfer problems, what are the disadvantages of steel framing?

4. Describe solutions to the heat-transfer problems of metal framing.

5. Summarize the current code considerations of steel framing.

6. Describe the NAHB prescriptive method and its significance.



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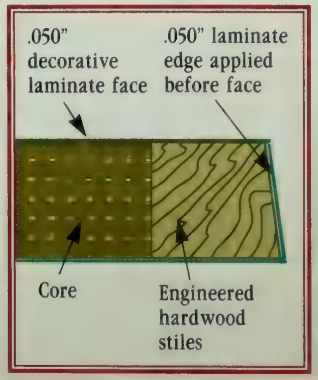


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ANSWERS

Answers refer to the article "The Maturing of Metal Framing" (pages 133–36). To receive CES credits, fill in the self-report form below.

1. Though attachment and sizing methods differ, steel framing can be assembled on site in a manner similar to that for wood framing. Vertical spacing is usually at 24 inches rather than wood's standard 16. Panelization is a similar approach, but wall sections are preconstructed in a shop and assembled on site. A third method utilizes presized and precut post-and-beam-like assemblies that may have increased horizontal span and greater strength.

2. There is an abundant supply of steel with consistent quality and steady pricing. Steel is dimensionally stable, accommodating long spans with its high strength-to-weight ratio. In the field, it can be purchased in specific lengths, resulting in less scrap. It is noncombustible, is not prone to attack by insects, and can be stored forever. Steel is easily recycled and does not release toxic gases.

3. Installation can be costlier. There is a shortage of experienced installers, and engineers unfamiliar with the system may overdesign. Acceptance may also be impeded by code officials who are not familiar with residential steel framing. Fastening techniques are slower than in wood framing. Insulation commonly used requires blowing agents that are known to deplete the ozone layer and are scheduled for future phaseout. The fiberglass batt insulation used in wood framing is environmentally more benign.

4. Provide a thermal break between the metal studs and exterior sheathing on vertical walls. Consider placing insulation between metal joists and ceiling drywall (though experts have not yet endorsed this method). Consider new products that offer a higher level of insulation while requiring less of the environmentally problematic board insulation.

5. Funded by HUD, NAHB, and AISI, a prescriptive-framing standard facilitates sizing and specification of ordinary framing without the assistance of a design professional. Currently, the CABO One and Two Family Dwelling Code, which has been adopted by half the states, accepts the wall and floor components of the NAHB prescriptive method. The code prescribes that the steel be labeled by manufacturer, minimum uncoated metal thickness, yield strength, and thickness of galvanized coating. Though CABO's code is not applicable in seismic areas or where there are high winds, design shear values for attaching some engineered woods to steel framing are included in the ICBO's 1997 Uniform Building Code and SBCCI's 1997 Standard Building Code. Steel-framing code approval is pending for the BOCA code.

6. The NAHB prescriptive method provides guidance for one- and two-family metal-stud-frame residential construction. The agreement of the roll-forming industry on product standardizations and dimensions has made steel framing compatible with U.S.-manufactured window and door frames, and should promote accountability and growth in residential steel framing.

AIA/CES SELF-REPORT FORM

(Use to report learning units earned for Architectural Record only.)

Member information:

Last Name **First Name** **Middle Initial or Name**

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Program/project title: Architectural Record (10.97)

☐ "The Maturing of Metal Framing" (pages 133–36)

Completion date (M/D/Y): _____ / _____ / _____

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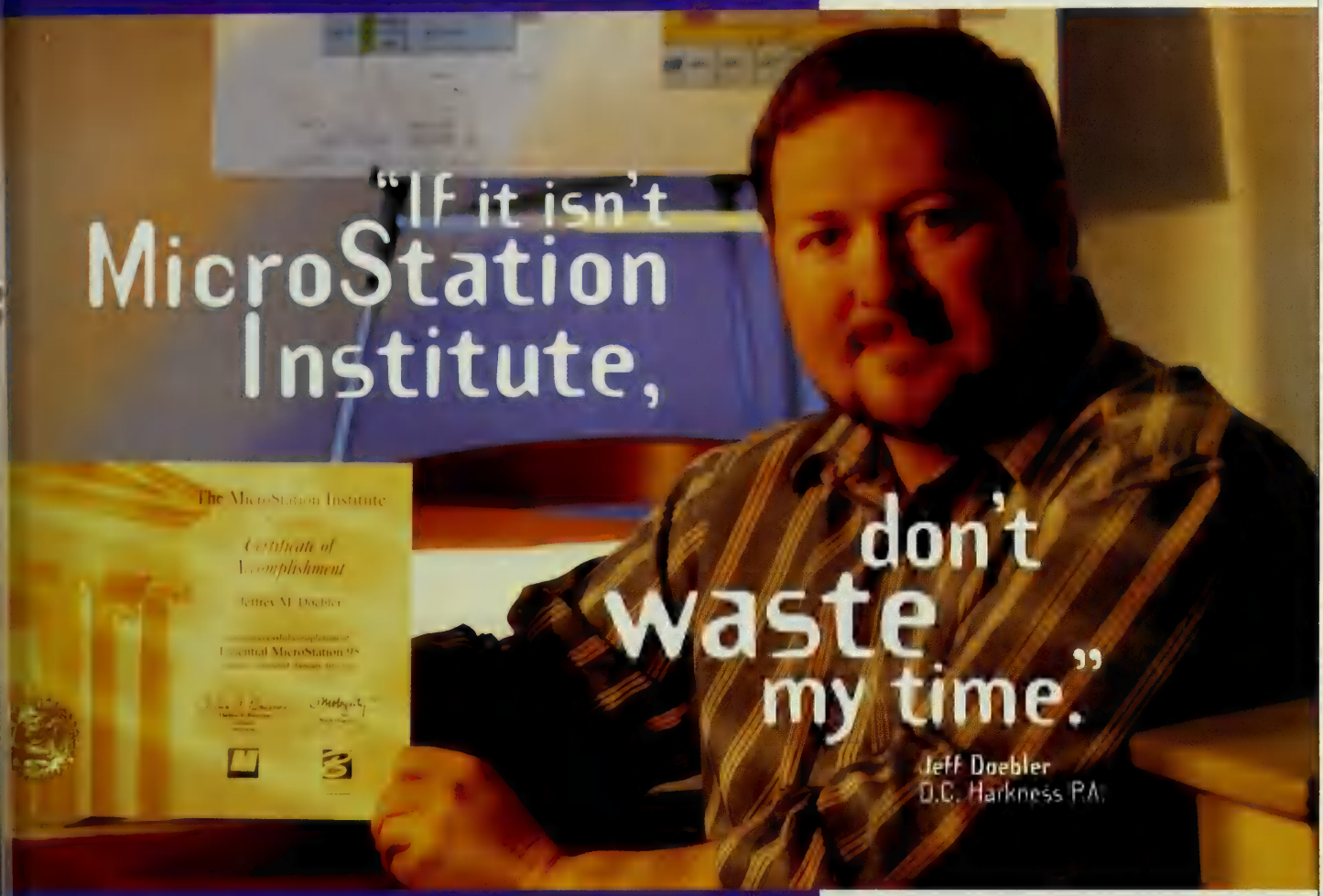
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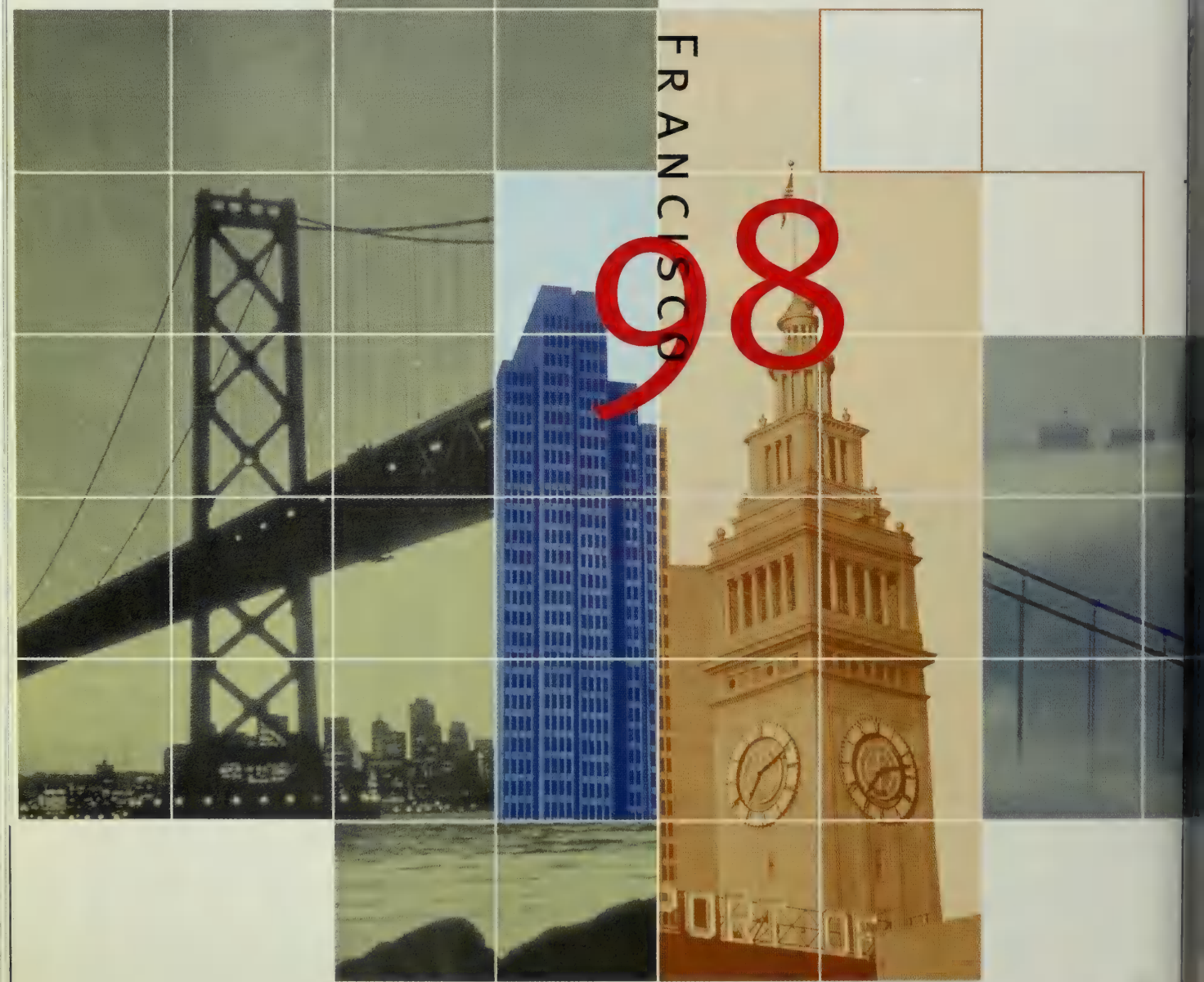
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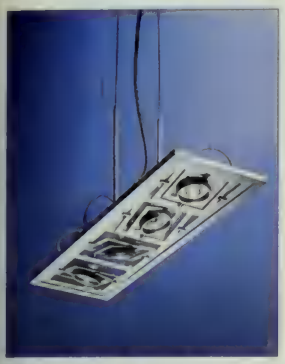
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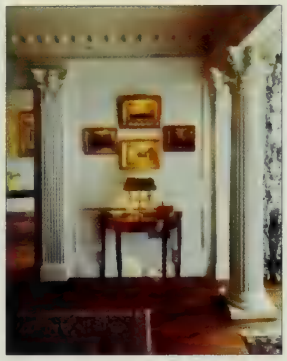


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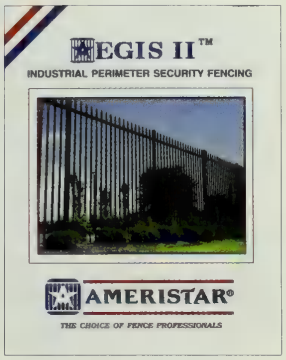


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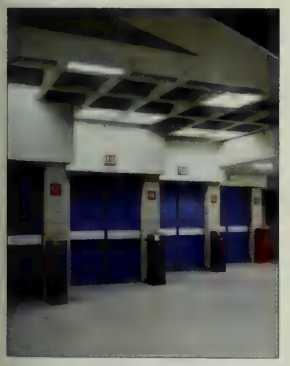


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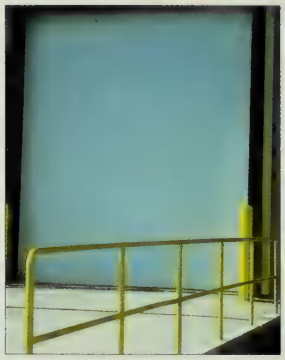


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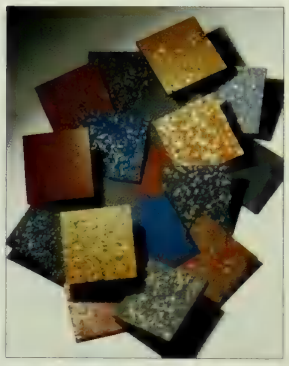


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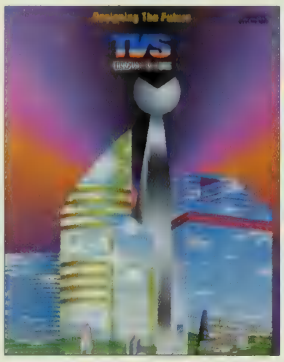


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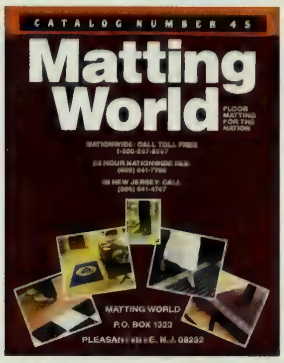


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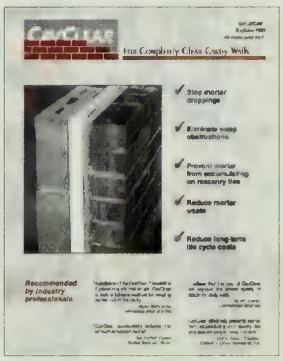


Security Mesh sheets are steel mesh panels used as a penetration resistance shield behind drywall finishes. Sheets are to be attached to metal studs & track or wood supports designed for use in walls. Uses: Prisons, government offices, stripmalls, storage rooms, computer rooms, courthouses, apartments, condos, pharmacies, mail rooms, airport security, banks, hospitals, police stations & office security.

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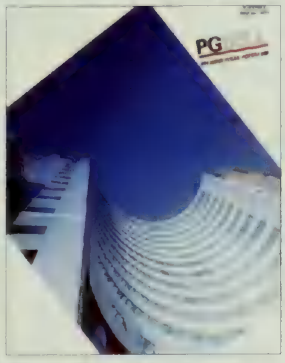


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OFFICIAL PROPOSALS

Bank for International Settlements (BIS)
Basle, Switzerland

Invitation to preselection for extension project

In its **search for an architect** to design an extension to its premises, the Bank for International Settlements invites qualified professionals worldwide to submit references to a preselection committee.

The **Bank for International Settlements (BIS)** is an international organization owned and controlled by central banks. It was founded in 1930 and is located in Basle, Switzerland. The Bank's shareholders currently number 44 central banks.

The BIS is planning a high-quality **extension** to its existing premises situated near the main railway station in the centre of Basle. The existing premises have a floor area of 28,000 m^2. The BIS intends to create maximum new floor space of 7,500 m^2.

The **references** to be submitted should consist of an office presentation summary including examples of comparable projects, client references, and the number and qualifications of staff. The architects should be members of their national professional body. The BIS also intends to consider young architects for this project.

The **preselection committee** will consist of members of the BIS's management, leading international architects and critics, and representatives of the local authorities. Upon completion of the preselection procedure, invitations will be extended to a maximum of ten architects to enter the parallel project studies procedure.

To guarantee consideration, references must be received by the BIS by close of business **on 31st October 1997**. Responses should be mailed to Mr. J.-M. Andreoli, Assistant Manager, Bank for International Settlements, Centralbahnplatz 2, CH-4002 Basle, Switzerland.

Further information about the Bank is available on the BIS World Wide Web site (http://www.bis.org.).

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Send resume to:

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FAX: (314) 567-0602

ARCHITECTURAL COORDINATOR
To design and manage various capital improvement projects including construction and allocation of public buildings, structures and facilities; perform architectural design for projects on buildings/structures (vertical construction), including renovation of historically significant structures using AutoCAD; prepare construction documents; prepare bid specifications using CCB Specification Data Base and knowledge of CSI (Construction Specifications Institute) standards; coordinate with client (user departments) on design/construction/renovation plans; prepare consultant agreements for outside design consultants, including scope of work and project schedule, using Microsoft Project, Timeline or Primavera P3 software; evaluate bids, and compare against in-house estimates; make recommendations for award of bid; prepare construction cost estimates; prepare documents for approval of contracts by city council; assist in field inspections on building construction projects. Requires Bachelor of Architecture degree with one year of experience in the job offered or in the related occupation of Architectural Student Intern; full or part-time equivalent experience gained before or after earning degree will be accepted; will work under direction of Registered Architect. Salary: $35,025 per year, 8 am to 5 pm, M-F. Send resume to: Georgia Department of Labor, Job Order #GA 6130714, 5520 White Bluff Road, Savannah, GA 31403-2069 or the nearest Department of Labor Field Service Office.

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PLANNERS

City of Kansas City, Missouri: professional Planning positions available in the City Planning & Development Department.

Planner I position requires graduation from an accredited four year college or university, supplemented by a Master's degree in Planning, or graduation from a four year accredited college or university in Planning or related field and two years professional experience in community, urban or regional planning work. Must have strong oral and written communication skills and computer skills including spatial analysis; design skills desirable. Experience in long range planning and analysis for developing high growth areas of the city preferred. Primary duties include preparation of area wide, neighborhood and project plans, review of development projects for long range implications and assisting the public with planning issues. Interest in conservation easements preferred. Salary range $2,239 to $3,357 per month.

Planner II positions require graduation from an accredited four year college or university, supplemented by the completion of a Master's degree in Planning and two (2) years professional experience in community, urban or regional planning work at the level of Planner I, or graduation from an accredited four year college or university and four (4) years professional experience in community, urban or regional planning work. Must have strong oral and written communication skills, computer skills including spatial analysis, and ability to plan, organize, supervise, and carry out complex projects effectively; design skills desirable. Primary duties include preparation of area wide, neighborhood, and project plans, review of development projects for long range implications, assisting the public with planning issues, and organizing work teams. One position requires long range planning and analysis for developing high growth areas of the city, and a second would require long range planning and analysis for older, central areas of the city. Salary range $2,428 to $3,881 per month.

Planner III positions require graduation from an accredited four year college or university with major course work in one of the social sciences, engineering, city planning, landscape architecture, or architecture, supplemented by the completion of a Master's degree in Planning; and four (4) years professional experience in city, regional, or urban planning work or graduation from an accredited four year college or university with major course work in one of the social sciences, engineering, city planning, landscape architecture or architecture; and six (6) years of professional experience in city, regional, or urban planning work including three (3) years at the level of Planner II. Must have strong oral and written communication skills and computer skills; design skills desirable. Experience in municipal government preferred. Primary duties of one position include preparation of complex area wide, neighborhood and project plans, review of development projects for long range implications, assisting the public with planning issues, and providing technical advice to subordinate personal to address planning issues in developing, high growth areas of the city. A second position will coordinate implementation of the newly adopted city strategic and comprehensive plan including coordinating special projects, direct research and analysis of complex planning issues, budget and consultant contract management, and daily coordination of plan implementation. Salary range $3,309 to $5,413 per month.

Non-residents, if appointed, must establish residency within the city limits of Kansas City, Missouri. The City offers an excellent employee benefits package. Pre-employment drug screening required as a condition of employment. The City of Kansas City, Missouri is an Equal Opportunity Employer committed to a diverse workforce.

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Contact (816) 274-1127 if questions.
Application deadline: *November 24, 1997.*

tion documents, and construction administration. Ability to work on multiple projects in a design environment. Min $40K/year + benefits. Fax resume to Roth + Sheppard Architects in Denver, CO at 303-534-7722.

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Seeks applicants for two tenure track faculty appointments at Assistant or Associate Professor rank beginning September 1998. In Architecture: One faculty position to teach courses in environmental control systems and architectural design. In Interior Architecture: One faculty position to teach interior design and one or more courses in the following areas: interior design media, design methods, color theory and application, digital media, electric lighting design, history and theory of interior architecture/furniture, interior finish materials, textiles, and design detailing. We also seek nominations and applications for two one-term Distinguished Visiting Professor positions: Frederick Charles Baker Professor in Lighting and Architectural Design and Pietro Belluschi Professor in Architectural Design. Applicants must hold appropriate advanced degrees with teaching, research, and practice and/or practice experience. Full position descriptions, applications and related information are available from Nancy McNaught at (541) 346-3656. Information on the School of Architecture and Allied Arts, its departments and programs is available at our website at http://laz.uoregon.edu. To apply, forward curriculum vitae, statement of interest, names of three references and no more than 10 pages of representative research/creative practice to the Faculty Search Committee, Department of Architecture, 1206 University of Oregon, Eugene, OR 97403-1206. To assure full consideration, applications must be received by December 1, 1997. Positions will remain open until qualified candidates are identified. The University of Oregon is an AA/EO/ADA institution committed to cultural diversity.

FACULTY POSITIONS VACANT

The University of Oklahoma, Norman Campus
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- appropriate academic and professional credentials including an outstanding record of achievement sufficient for appointment as Full Professor with tenure
- a strong commitment to excellence in undergraduate education, graduate education, scholarly research, and creative activities
- the ability to develop and maintain supportive relationships within the College, the University, and the State, and among alumni, professionals, and their organizations
- a consensus builder with strong communication, administrative, and fundraising skills
- personal qualities implicit in one primarily responsible for promoting rigorous academic and professional standards within a stimulating and creative setting
- a commitment to Affirmative Action employment guidelines, practices, and outcomes."

College of Architecture Dean Search Committee
The University of Oklahoma

Initial screening of candidates will begin on November 3, 1997 and the search will continue until the position is filled. Send nominations describing qualifications along with a resume to:

Architecture Dean Search Committee
University of Oklahoma
Sarkeys Energy Center
100 E. Boyd, Room 710
Norman, OK 73019-0628

Questions or requests for additional information should be directed to Dr. John T. Snow, Search Committee Chair, at email address *jsnow@ou.edu* or (405) 325-3101. Obtain information about the College of Architecture on internet site http://www.uoknor.edu/architecture. OU is an Affirmative Action, Equal Opportunity Employer. OU has a policy of being responsive to the needs of dual-career couples.

Tenure-Track Positions
School of Architecture

SYRACUSE UNIVERSITY – The School of Architecture is conducting a search for expected full-time tenure-track positions at the rank of Assistant Professor beginning Fall 1998. For each position, candidates must demonstrate an interest in pursuing intellectual goals through scholarship, research and professional practice and have the ability to communicate effectively with students.

Architectural Design (four positions)

Responsibilities include teaching beginning design studios as well as elective courses in one of the following areas: Drawing, Theory, or Structures. Candidates should demonstrate a capacity to teach undergraduate and graduate studios and have, as a minimum, a first professional master's degree in Architecture with experience and registration preferred. Applicants should explicitly state their area of secondary expertise. The salary level will be commensurate with experience at the Assistant Professor rank.

Architectural Computing and Design (one position)

Responsibilities include teaching an architectural design studio and elective courses in computer applications. In addition, candidates should have a willingness to serve on design reviews and offer their computing expertise in studio teaching. A professional degree in Architecture with office or academic experience in computing applications in architecture is required. Candidates should have a track record in publishing, obtaining outside funding and engaging in research or equivalent applications experience in practice. The salary level will be commensurate with education and experience.

Candidates may visit the school on the web at http://mirror.syr.edu/soa.html.

Candidates for either position should send curriculum vitae, a minimum of fifteen photocopied samples of design work (not to be returned) a statement of interest and goals, and the names of at least three references, by Friday, November 21, 1997, to: **Chair, Faculty Search Committee, 103 Slocum Hall, School of Architecture, SYRACUSE UNIVERSITY, Syracuse, NY 13244-1250.** Syracuse University is an Equal Opportunity/Affirmative Action Employer. Women and members of other traditionally under-represented groups are encouraged to apply.

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Professor Peter McCleary
Chair, Cret Search Committee
Graduate School of Fine Arts
214 Meyerson Hall
University of Pennsylvania
Philadelphia, PA 19104-6311

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Teaching overseas: The Department of Architecture and Design at the American University of Beirut (AUB) in Beirut, Lebanon, has openings in Architecture, Landscape Architecture, Urban Planning, and Urban Design for the academic year 1998-1999, including continuing appointments beginning October 1998 and visiting positions for one or two semesters duration beginning October 1998 or February 1999. Applicants must have a professional degree and a Master's degree in an appropriate specialty with a minimum of three years experience in professional practice and/or teaching experience at the undergraduate or graduate level. Preference will be given to applicants with a PhD degree or equivalent. Applicants in Urban Planning must have a PhD degree. Applicants must be able to show evidence of an active and ongoing research agenda. Salary and rank are commensurate with qualifications. Applications must include a letter of interest, a complete curriculum vitae, samples of research and creative work, and the names and addresses of three references. Complete application should be sent by air mail to ensure arrival before January 30, 1998, and must be addressed to the Dean, Faculty of Engineering and Architecture, American University of Beirut, Beirut, Lebanon, with a copy to American University of Beirut, Personnel Services, 850 Third Avenue, 18th Floor, New York, NY 10022. The American University of Beirut is an Affirmative Action/Equal Opportunity Employer. AUB's home page is at http://www.aub.edu.lb

at T: (801) 974-2843 - F: (801) 972-9409

FACULTY POSITIONS VACANT

Yale University

Invites applications and nominations for

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Applicants and nominees must have demonstrated professional, artistic or scholarly accomplishment.

The position becomes available July 1, 1998.

Applications and nominations with supporting materials should be submitted by January 1, 1998 to:

Thomas H. Beeby
Chair, Dean's Search Committee
Yale University
c/o Office of the Provost
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P.O. Box 208236
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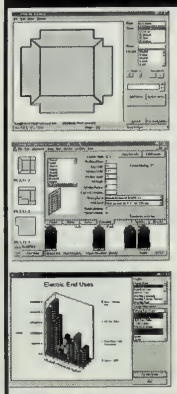
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CIRCLE 62 ON INQUIRY CARD

THE FUTURE Eyeball to eyeball: Will iris recognition be the lock and key for the 21st century?

BY JOAN BLATTERMAN

There seem to be a lot more crooks out walking around, and they're a lot smarter than they used to be. From the electronic whizzes who clone computer passwords to divert bank deposits, to the same-name frauds who create false identities from credit-card receipts fished out of the trash, there are far too many impostors these days. In the next few years, biometrics will be used to solve more and more of these identity problems—and architects will have to accommodate new ways of unlocking doors.



The eye-scanning camera is a super-accurate electronic gatekeeper.

Biometrics, the statistical measurement of biological phenomena, compares physical characteristics—such as a human's fingerprints or a bird's white-tipped wing feathers—across a given population. High-speed computers can make such comparisons virtually instantaneous, matching the person at the ATM machine with information already entered in the database containing physical features such as fingerprints, voiceprints, or scans of an entire hand. But there are interpersonal difficulties with some biometric techniques. Fingerprints, used for decades as a unique determinant of individual identity, have acquired an aura of criminal suspicion. Messy and intrusive for the "donor," they can be altered, either deliberately or by circumstance (bricklayers have pretty worn fingerprints). Hand scans, which compare hand geometries, require physical contact by the user with the machine, and the hand must be exactly placed on the scanner. Voice recognition, now used to monitor felons under remote supervision (such as house arrest), can be tricked. And these technologies require the user's active cooperation.

Eyes don't lie

A start-up firm in New Jersey named IriScan thinks it has the biometric access-control and identification device for the next century: iris recognition. The technology is based on the ophthalmic research done in the early 1980s by doctors Flom and Safir, which demonstrated the unique characteristics of the random patterns within a human iris, the pigmented part of the eye that contracts in response to light. In the entire human population, no two irises are alike in their mathematical detail, even among identical twins. Dr. John Daugman, a computer-science professor at Cambridge University, developed the algorithms that permit the comparison of a living iris to its matching image already "enrolled" in a database. He describes his invention as a way of encoding, and confidently recognizing, the complex, random patterns that make the iris a veritable human bar code. This person-matching technology needs only a glance into an ordinary video camera to record the unique aspects of an individual's iris; it takes only two seconds for a PC with IriScan software to search for the match within its system and verify (or deny) identification.

Because the iris is an internal organ of the eye, protected from environmental insults by the cornea and the aqueous humour, it does not change over time. Access-control units made by IriScan are user-friendly, and no physical contact is needed. A door- or wall-mounted box holds a video camera and a filtered red-light source, such as a tungsten bulb. The user simply looks at an image of his or her own eye displayed on a miniature TV screen set at a distance of 10 or 12 inches, as in the photo, left. Movements of the pupil confirm that it is a living eye, so that the device can't be fooled by a photograph or a glass eye.

Iris recognition today

Prisons in Pennsylvania are now using iris-recognition entry-control units to secure inmate movements and enhance the physical security of personnel by reducing the temptation of prisoners to overpower an unarmed guard in order to grab his keys. Iris-scan techniques are also being used in some new ATM machines and check-cashing kiosks. Soon, small, portable iris imagers will enhance user security in such remote applications as stock sales over the Internet or point-of-sale transactions in stores: thieves can steal Social Security numbers and forge credit cards, but they can't pretend to have your eyes.

Architectural applications

As new technology and competition drive costs down, electronic access control is fast becoming the norm in even budget-sensitive applications like colleges and healthcare. According to *Doors and Hardware,* an industry trade journal, a turf war is emerging between distributors of standard door-hardware products and the manufacturers and installers of electronic access-control systems. The security aspects of a given entry are starting to overwhelm traditional hardware concerns. Mark Olmo of Kolram Security Group cites a recent large project where the owner demanded electronic access-control devices on each of over 400 doors, showing how security concerns have top priority in the selection of door hardware. While handles and pulls will still be needed, keys may vanish. ■



Daugman stares at an encoded iris; the upper screen shows the math.

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The Competition Game *by David Dillon*

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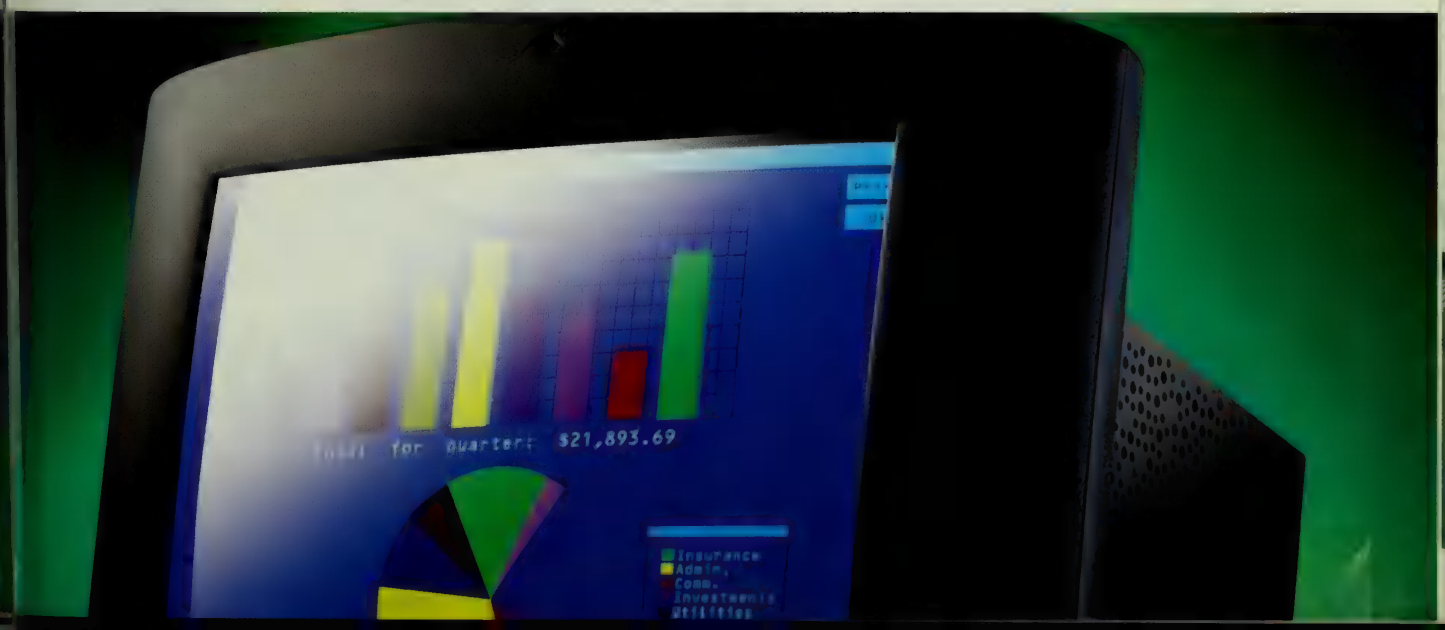
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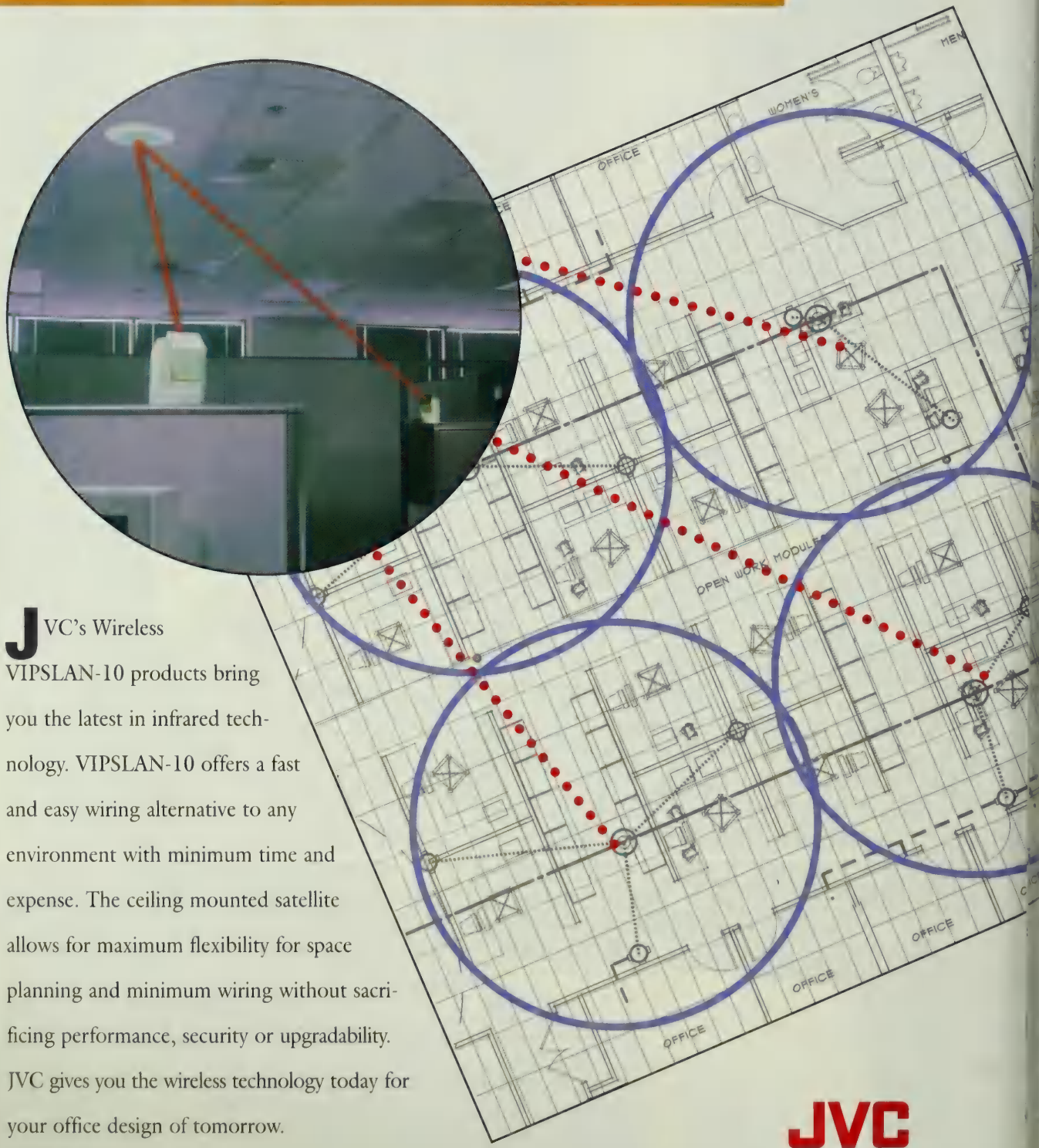
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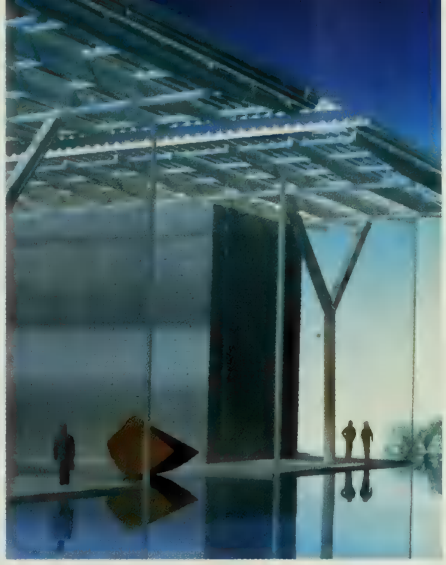
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Above: *Tadao Ando's competition entry for the Modern Art Museum of Fort Worth (see page 63). Photo courtesy the Modern Art Museum of Fort Worth.*

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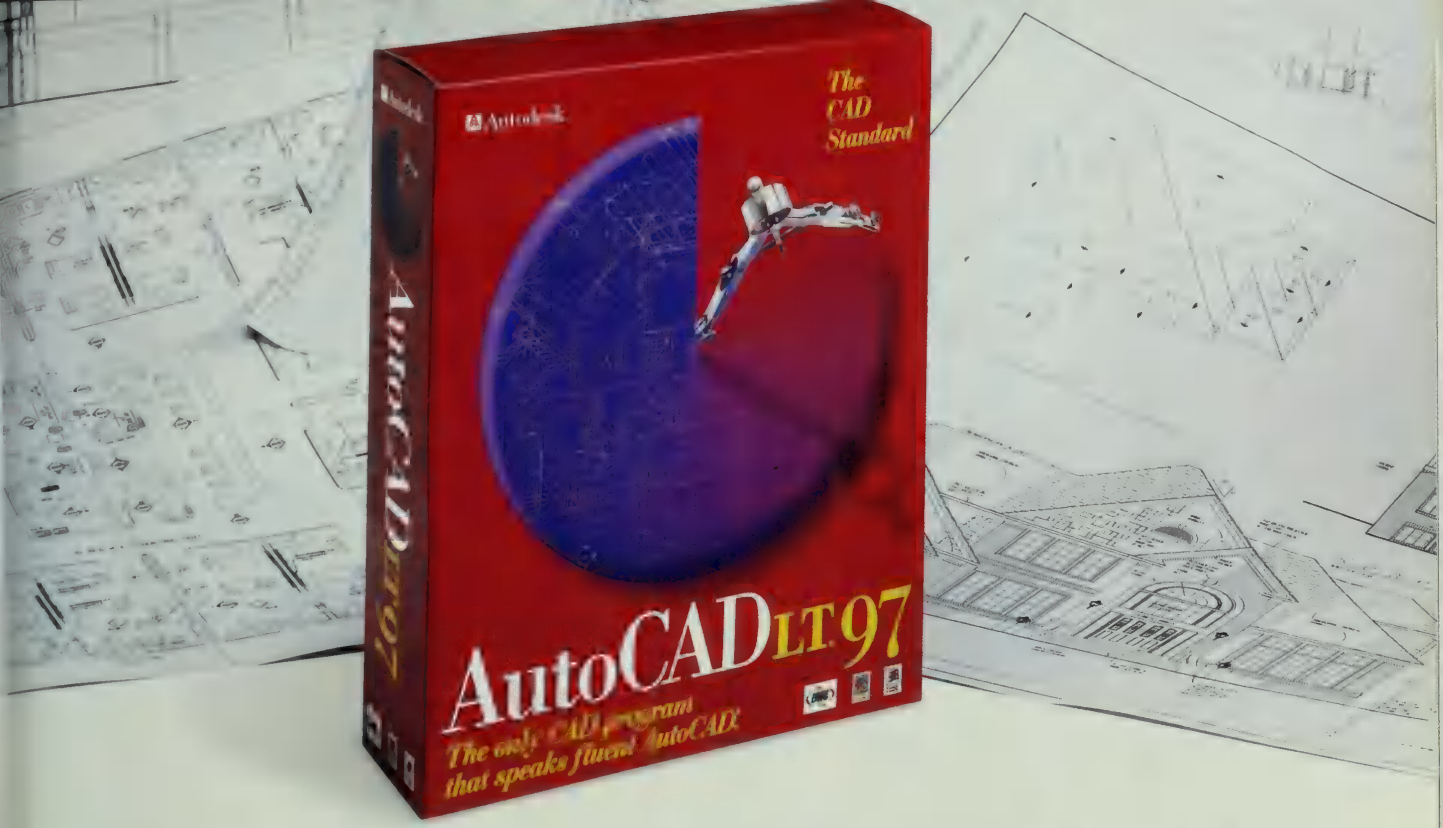
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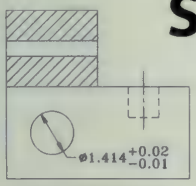
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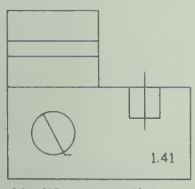




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EDITORIAL

A Tale of Two Hilltops

BY ROBERT A. IVY, FAIA

The view from the shining brow of the Getty Center embraces the entire Los Angeles arena, from the blue smear of the Pacific to the mountains. The center itself, in plan and execution, incorporates specific, critical issues and attitudes from this century's architecture, presenting an edited summary statement of the present moment, seen through Richard Meier's eyes.

Architecture can sometimes capture time, as it does here, with the certainty of an atomic clock. A trained eye can examine a site plan and read a culture's point of view toward the landscape; focusing on small details can expose a world of technological concerns. Perhaps it is a building's complexity, the sum of thousands of small decisions, that announces its age, or perhaps it is a fourth dimension, a silent voice speaking through the empirical evidence. Regardless of the cause, buildings tell us about their own time.

Comparisons only enrich the discussion. There is a dialogue taking place on two Southern California hilltops, not between individuals but between two significant museums. One was built at the beginning of this century; the other, at its conclusion.

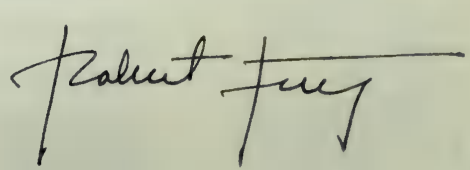
Noonday steam rises from the grassy lawns of the Huntington estate in San Marino, blurring the air. Individual neoclassical buildings stand isolated and inert, commanding vistas toward mountains or town. Marble statues placed at intervals along the primary axis recall Versailles. The grounds insist that the heirs of European civilization have reached the limit of the American West, imposing an order to the tangled scrubland.

As at the Getty, gates isolate the ensemble from the surrounding suburbs. Winding roads lead to a mausoleum-like library, its interior chambers dark and its walls fortress-thick, where Henry Huntington, the railroad magnate and a major developer of Southern California, maintained an incomparable collection of books and manuscripts. But today his home, a 1909 Beaux Arts palace sitting nearby, feels oddly sterile to the contemporary taste, an expression of power when the lights have gone out.

The Getty Center shares many of the Huntington's motives, yet varies in its outcome. Both were the by-products of vast fortunes and both reflect an American fascination with wealth. Both employ European planning ideals, combining white buildings, sculpture, and water in the hillside landscape; both contain treasuries of European art. While both were intended for limited access, they engage a range of uses and users, from scholars to casual visitors, many of whom simply come to soak up the ambience.

But the Getty's solution, rather than imposed, seems engaged with its hillside. The Getty's site plan, indeed its internal order, creates sequence and pathways, an architecture intended as much for human experience as for formal observation. The center's precisely gridded buildings, from travertine base to metal and glass walls, maintain a consistent, internal order in which no single structure dominates or screams for attention. Instead, the center invites rambling, offering transitions from dark to light, from inside to outside, rather than viewing from afar. Additionally, there is a civic dimension to the plazas and porches that reflects contemporary social mores: the Getty offers interaction and comfort amid the Rembrandts.

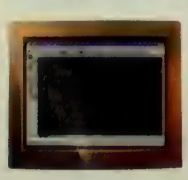
It is a sensibility as much as any single building that dominates the hilltop, a time-specific Modernism drawn both from precedent and from this moment. Situated only a few miles apart but at opposite ends of "The American Century," related yet remote, the two museums comment on their makers and users and almost a hundred years between. Meanwhile, the architecture of the future hovers over Los Angeles in an egalitarian, multicultural smog, working itself out to strong new rhythms for another day.





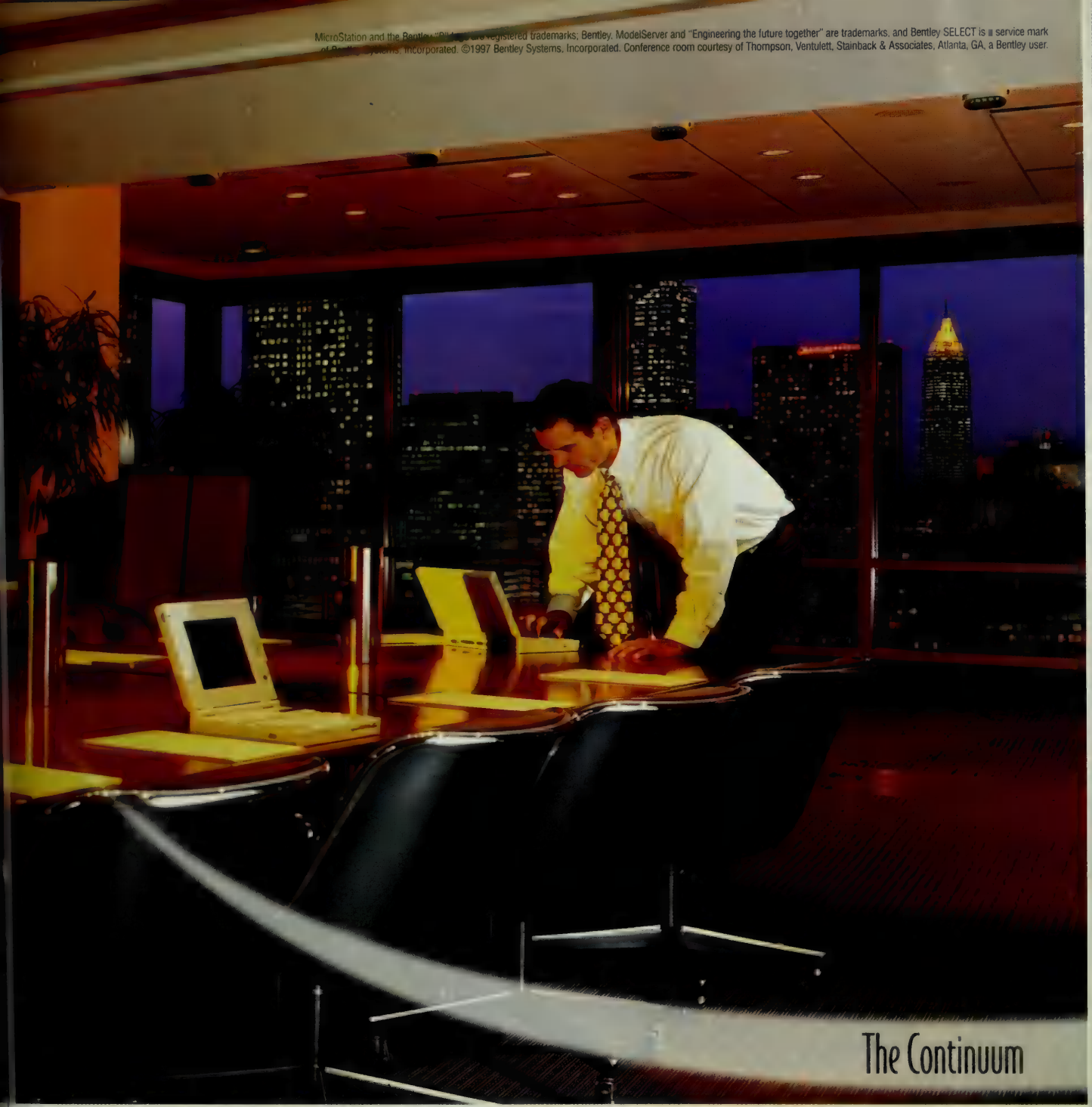
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CIRCLE 6 ON INQUIRY CARD

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CIRCLE 7 ON INQUIRY CARD



Inside eve

detail

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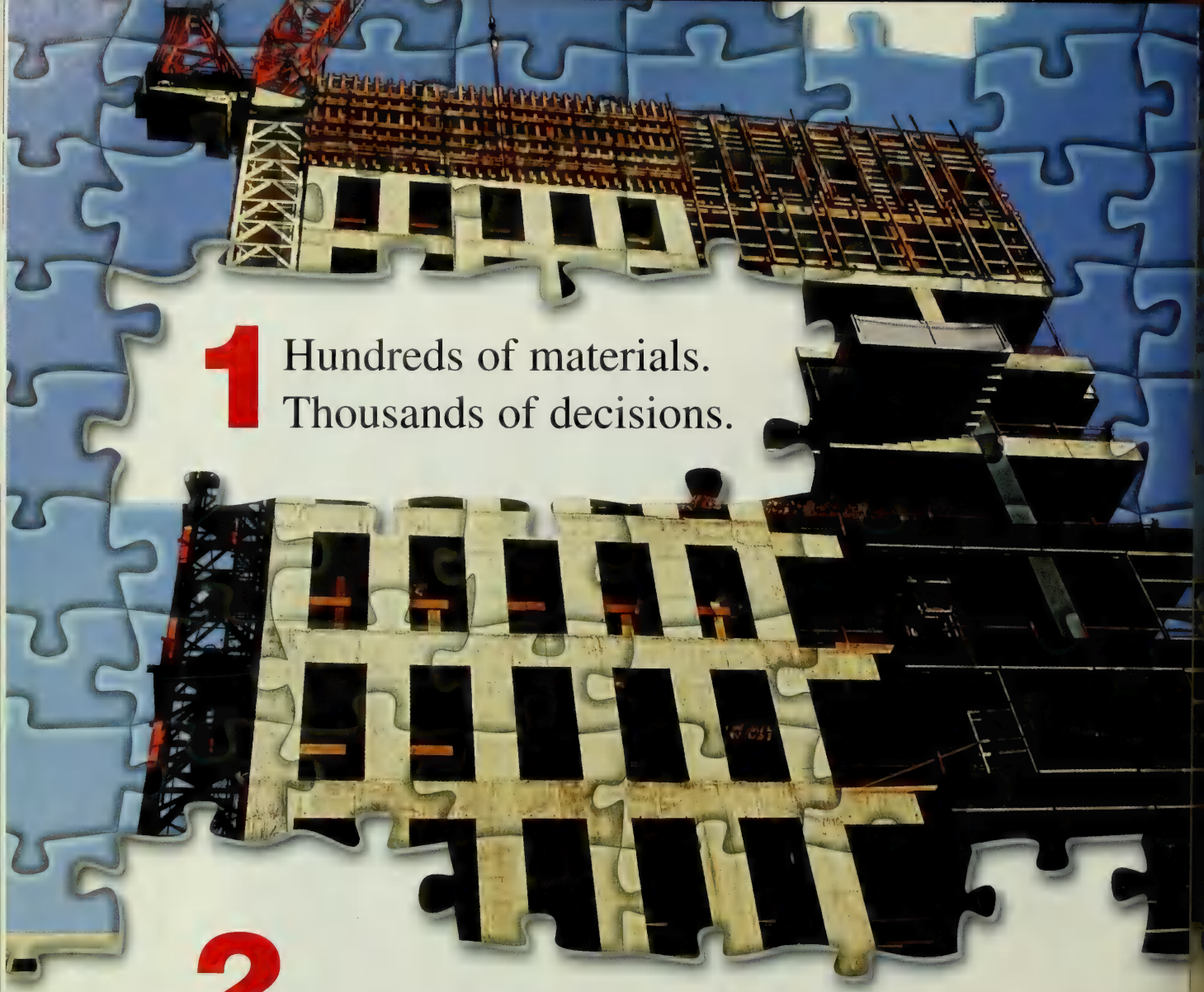
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CIRCLE 9 ON INQUIRY CARD



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CIRCLE 10 ON INQUIRY CARD

LETTERS

Remembering Rudolph

Every so often a person comes along whose life is the embodiment of the theory of the "tragic hero." Paul Rudolph, who died in August [September, page 40], was such a person. In architecture, Francesco Borromini and Louis Sullivan were among those creative souls whose artistic brilliance outweighed their interpersonal skills, which resulted, in part, in their being more appreciated after death than during their lifetimes.

Paul Rudolph's peers never recognized satisfactorily his extraordinary career. He never won the Pritzker Prize, the AIA Gold Medal, or the Topaz Award, while others of equal, sometimes questionable, stature received these honors. No one who knew Rudolph would debate his well-known apolitical inclination to not suffer fools gladly; this may have limited his potential for recognition.

Rudolph was one of the most dedicated architects I have ever known. He was also the best teacher I ever had. His personal tragedy was in his expectations of architecture: that it would confer on him that which only life can deliver. I know of these things because I was his student, his employee, and, later, his friend. Those who deserted him when his work went out of fashion represent an aspect of architecture that I detest.

While others may feel that much of his later work was a tour de force, I found that his envisioning capabilities and his courage were present throughout his career. He was committed to an extraordinary level of architectural innovation of a magnitude that exemplifies the very best of his discipline.

Rudolph was also a teacher of such resonance and authority that during his brief watch at Yale, he managed to produce graduates of an immense diversity, ranging from Alan Greenberg, Jaquelin Robertson, and Robert A.M. Stern on the one hand through Norman Foster, Charles Gwathmey, and Richard Rogers on the other. The best of those under his tutelage were neither intimidated by nor sycophantically inclined toward his own architectural production. As far as I am concerned, his behavior encouraged just such independence.

There is a theory—far better than that of the "tragic hero"—to be appreciated after Rudolph's death: one's innocence is left intact during life. If the way in which members of the architectural community exercised selective amnesia in regard to Paul Rudolph's accomplishments is an example of that theory, leave me out.

—Stanley Tigerman, FAIA
Tigerman McCurry Architects
Chicago

I have just read Michael Sorkin's appreciation of Paul Rudolph. I would like to add a "Southern" touch to his comments.

Sorkin wrote that Paul Rudolph "earned his architectural degree from Harvard." While Rudolph did hold a master's from Harvard, his undergraduate degree in architecture was from Auburn University, in the days when the school was known as the Alabama Polytechnic Institute (API).

Rudolph was a member of Brad Clopton's class, at both Auburn and Harvard. I worked for Clopton through my high school and college years. In fact, I have a copy of the annual from Auburn the year that Rudolph and Clopton graduated. Clopton was full of stories about Rudolph, often pointing out that Rudolph, after receiving his degree from Harvard, dropped API from his résumé.

Clopton also told stories of Rudolph's early projects in Florida, which were mostly houses. Rudolph had few clients in those days, mostly friends and himself. When these projects were first published, they were lauded not only for their strong linear character but also for the low, linear furniture he put in them. According to Clopton, Rudolph and his friends had little money for bedframes so they put their mattresses on the floor or built 2-by-4 frames and dressed them up with lengths of fabric. This low style of bedding became all the rage.

—Laurin McCracken
HNTB Architecture
Alexandria, Va.



I enjoyed Michael Sorkin's appreciation of Paul Rudolph but was taken aback by his comments about the fire that damaged the A&A Building at Yale University.

Sorkin appears to make the assumption that the fire was, in fact, set intentionally. After extensive investigation, the New Haven Fire Marshall concluded that the fire was accidental. He knew how, when, and where the fire started, and ruled out arson. Sorkin writes of this accidental gutting of a building as if it were a huge symbolic protest against architecture and, tangentially, against Paul Rudolph. It was neither. The fire was an unfortunate accident that destroyed a good deal of student work (including mine) and did a great deal of damage to a very interesting, if somewhat unpragmatic, building.

There was a certain amount of protest in the air in those days, but most of the students in my class recognized that they were in a great school led by a great educator in Charles Moore, and they were anxious to pursue their studies.

I am also a bit puzzled that Sorkin found the fire to be the "central event in the formative years" of his architectural generation. A building that was something of a firetrap because of the materials used by the students (paper, rubber cement, benzine, plastics, etc.) caught fire and burned. Nobody set it. Although the fire emphasized the importance of sprinkler systems, which the A&A Building did not have, I do not understand how this event was "central" to the education of our generation.

—Robert Knight, AIA
Knight Associates, Architects
Blue Hill, Me.

RECORD Interiors Redux

On entering the architectural profession in 1947, at a time when young folks received experience in lieu of cash, my wife and I built our first house. While rattling around in our 480 square feet and gazing at the bare studs, we were somewhat depressed by our pecuniary disadvantage in not being able to purchase wallboard.

Half a century later, having seen the Chapel of the Word by David Woodhouse Architects [September, pages 80–85] and the house and studio by Randy Brown [pages 96–101], we realize that we were 50 years ahead of our time.

—John L. Webb, FAIA
Ponchatoula, La.

Gehry's Guggenheim

Maybe its just me. . . . Maybe I'm getting old. I thumb through architectural magazines every month out of habit, finding them less useful and less inspirational each time. So, with that low level of expectation I opened your October issue to the pages on the Guggenheim in Bilbao by Frank Gehry [pages 74–87].

Wow!

It is far too early to judge it as architecture, but as a sculpture it is incredible. The response it creates goes well beyond admiration: it is pure, green-souled envy of the talent expressed.

(continued on page 194)



11 ON INQUIRY CARD

SPEAK OUT Becoming an architect: motivation to fail?

ROBERT L. MORGAN



Robert L. Morgan is president of the American Institute of Architecture Students (AIAS). The AIAS is an independent professional student organization that promotes excellence in architectural education, training, and practice. It has a membership of more than 5,000 students, interns, and professional affiliates. For more information, contact the AIAS at 202/626-7472 or aiasnatl@aol.com.

In August 1993 I entered the Clemson University School of Architecture with 72 other students. These individuals were among the top academic achievers entering Clemson, with an average SAT score of 1,115 and an average rank in the top 20 percent of their high school classes.

When I was awarded my Bachelor of Science in Architecture last spring, only 35 of my original classmates stood beside me.

An attrition rate like this is alarming, but in the course of becoming an architect, not unusual. Students and interns face an eight-year-plus process that includes acquiring a degree from an institution accredited by the National Architectural Accrediting Board, participating in the Intern Development Program, and passing the Architect Registration Examination (A.R.E.).

College tuition is increasing, compensation during internship remains appallingly low, and the A.R.E. is now one of the most expensive professional exams in the country. Together, these factors have prompted many students and interns to opt for alternative careers.

While the AIA increases its efforts to restructure the profession, the educational environment drives away the very people who could implement change.

From the start, architectural students encounter a hazing mentality in which the success or failure of their design-studio performance, frequently harshly and subjectively judged, overrides all other educational experiences.

The hostile studio environment and lack of educational diversity pushes many students away from architecture. Some leave because they cannot handle the rigorous training, but many more leave because they do not see the ultimate reward for their efforts in either professional compensation or ultimate job satisfaction.

The college years should be a time when students expand their horizons while receiving an intense but well-rounded education. This cannot occur in a demeaning studio environment that demonstrates little sensitivity to personal and professional development. In an increasingly globalized economy, this educational approach discourages creative thinking just when we need it most.

Rather than motivate students to embrace the greater artistic, technological and social mission of architecture, today's training sustains an outmoded atmosphere of learning by public humiliation rather than by collective and constructive criticism.

This mind-set carries into the workplace as students become interns. Practitioners pay low wages, demand long hours, and generally assign unrewarding work. Architects are less interested in mentoring—continuing the educational process and filling the educational gaps that schools do not provide—than in interns' hours and billing value. In so doing, they turn their backs on the future of architecture, forcing interns into a stilted environment that stresses production over professional development.

If they survive school and internship, aspiring architects must then take the A.R.E. to become licensed. This past year the National Council of Architecture Registration Boards added insult to injury by almost doubling the price of the A.R.E. to $980. In a profession that regularly complains that it does not get enough respect, little respect is paid to its fledgling members.

How can we work to redefine the profession when so little effort is dedicated to refining the process by which architects are made?

Talented and intelligent students are entering schools, but the training process fails to provide them with the necessary skills to become leaders in society and proponents of the profession. At worst, it steers them away from architecture altogether.

Until students, educators, interns, and practitioners break from this destructive tradition and redefine this moribund educational process, the profession of architecture will never be able to maximize its potential. ■

Contributions: *If you would like to express your opinion in this column, please send submissions by mail (with a disk, if possible) to Speak Out, Architectural Record, 1221 Avenue of the Americas, New York, N.Y. 10020; by fax to 212/512-4256; or by E-mail to ellen_popper@mcgraw-hill.com. Essays must not exceed 700 words. The editors reserve the right to edit for space and clarity. Where substantial editing occurs, the author will receive final text approval.*

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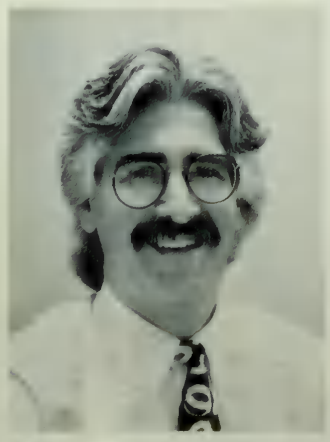
CIRCLE 12 ON INQUIRY CARD

MENTORS When wooing a new client, should you charge for conceptual design?

Belinda Stewart, AIA, is principal of Belinda Stewart Architects of Eupora, Mississippi. Her firm focuses on historic preservation, restoration, and new construction within historic environments.

R. K. Stewart, AIA, is a vice president with Gensler, in charge of the firm's Technical Steering Committee. Past president of AIA San Francisco, Stewart is Vice President for Professional Practice and Education, AIA California Council.





My husband and I, both architects, run a design firm. When a client approaches us with a project we start working right away. But we do not charge a fee until a design has been approved. Unfortunately, we have worked for weeks refining a plan, only to have the client take the drawings and have it executed by someone else. If we charge a retainer, we fear we may lose clients. Is there a solution? —T. A. Rahman

Belinda Stewart, AIA, responds: Communicate clearly with prospective clients. Describe in detail the services you are going to provide. Emphasize your creativity and professional training. Show how you have assisted other clients in this manner. Make every effort to be hired before preparing any design schemes. If you believe that the services you offer are valuable, it is up to you to impress this on your clients.

If, after full consideration, you choose to provide services up front, one alternative is to make a limited scope of work part of your marketing budget. Establish strict limits for what you will do. Set a specific time frame, number of schemes, or other quantifiable limit, and be sure it is agreed upon before you start. Define limitations on the use of the product if you are not hired.

While you may be concerned about alienating clients by charging them for design ideas, in fact subconsciously they may be thinking, "You get what you pay for." You need to ask yourselves, "Will a few lost clients have significant impact on our firm's success?" You may not have received commissions from them anyway—and you will have gained valuable, remunerative time.

R. K. Stewart, AIA, responds: The question of compensation for design concepts is a difficult one, faced by all architectural and interiors practitioners. In general, there is no legal prohibition against providing free design services. Some states, like California, have requirements for a written contract defining scope of services and method of compensation prior to starting work. But this is the exception, not the rule.

Copyright laws provide some protection for your ideas. Design concepts are legally protected, but this safeguard is easy to surmount with a few design changes. Your question is really a business decision that each practitioner must make.

Architects tend to be optimists, believing our designs to be so compelling that clients will gladly pay us what we are worth. The reality is far different. As a profession we have not done a good job of convincing consumers of our value. Arguments raised about architects' worth are undercut when practitioners perform design services at no cost. Why should prospective clients pay for design concepts when we give them away?

Here are some factors to consider when deciding the business question of compensation: If you hope to cultivate a long-term relationship with this prospect, as a sign of your interest you may waive compensation for conceptual design. But while this may draw the client in, it also sets up expectations that you will forego compensation on future projects. Unwittingly, you may cause the client to question your business sense. They may wonder, "How will these architects look after my money in managing the construction budget?"

For a new project type you may waive compensation as a research investment. Other options are to forego part of your fee, use lower billing rates, or develop other fiscal strategies to achieve your professional goals.

Whatever you decide, you can still take steps to protect your design concepts. Make your ownership of the copyright explicit. If you do not use a contract, then at least write a letter making your position clear. Or affix a rights ownership statement to the drawing. Establishing ownership may afford you legal recourse if the client asks someone else to execute your design. The most effective means is also the easiest: Do not give any drawings or electronic files to a potential client.

Compensation is a critical issue for architects. Is a client who does not want to pay you a client you really want to have? ■

Questions: *If you have a question about your career, professional ethics, the law, or any other facet of architecture, design, and construction, please send submissions by mail to Mentors, Architectural Record, 1221 Avenue of the Americas, New York, N.Y. 10020; by fax to 212/512-4256; or by E-mail to ellen_popper@mcgraw-hill.com. Submissions may be edited for space and clarity.*

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CIRCLE 13 ON INQUIRY CARD

PULSE RECORD readers were asked: Should the master's degree be designated as the first professional degree for all architects?

NO: 65%

No: An architect practices by virtue of a license issued by a state. The same is true in law, dentistry, medicine, and engineering. Architecture has been practiced successfully for generations by those armed with no more than a baccalaureate degree. The university that educates and hires degreed graduates certainly adds the luster of professionalism and credibility to its programs, but the public need for licensed professionals is not met one millisecond sooner or to a higher degree of effectiveness by the practitioner with the master's or Ph.D.

Why subject a student to two degrees and seven years of effort only to enter a highly competitive profession that features low wages, limited job security, and an uncertain career path? And, yes, I have a master's degree.
—Unsigned

No: Single designation is absurd. The B.Arch. should be the first and only degree. The M.Arch. degree is for theorists.
—John A. McCormac, AIA
St. Petersburg, Fla.

No: There is much evidence that we are moving toward plurality in society. The energy of this pluralism drives our culture and the evolution of the architectural profession. The profession requires individuals who have different educational experiences, abilities, and cultural traditions. The notion that a single professional degree at the master's level will enhance prestige and reduce confusion is an illusion.
—Marvin J. Malecha, FAIA
Dean, School of Design,
North Carolina State University
Raleigh, N.C.

YES: 35%

Yes: I firmly believe that the first professional degree should be a master's. I attended Kent State University's five-year, NAAB-accredited program. At KSU, the B.S. in architecture is awarded after four years of study. The B.Arch. is earned in the fifth year, which is considered a graduate-level year and requires graduate-level tuition. Explaining this process to the public and to parents is difficult. I now work for a firm and teach at a community college. Without a master's degree, it is virtually impossible to find a full-time position at a university without attending college for two more years, which is unlikely.
—Christopher Smith, Assoc. AIA
Gilberti Spittler International
Cleveland, Ohio

Yes: Five-year degrees have no academic credibility; they have been dropped by most other professional fields of study. The five-year degree is technical training. Students should acquire a liberal arts education before pursuing a professional education.
—Robert L. Bliss, FAIA
Salt Lake, Utah

Yes: I believe that the key to this question is that all architects are human beings first and architects second. The advantage of obtaining an architectural degree in a graduate school is that you are surrounded (hopefully) by more mature people.

In most states, we do not even allow young people to drink until they reach the age of 21.
—Henry Chao, AIA
Payette Associates Inc.
Boston, Mass.

This Month's Question

Should more architects lead design-build teams?

Some proponents of design-build suggest that architects not only participate as collaborators but as prime contracting parties, employing general contractors as subcontractors to produce projects within agreed-to budgets and schedules. The compensation supposedly includes higher fees and greater potential for control of the entire process.

Should more architects lead design-build teams? ☐ Yes ☐ No

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A Tale of Two Water Closet Technologies



by Joseph M. Smaul, P.E.

It was while working as the head of plumbing engineering and overseeing the HVAC for hotels on the East Coast that I became involved with pressurized water closets. We just finished a 600-room facility and we were preparing to go to work on the next 400-room project, when a letter crossed my desk from the major fixture manufacturer for the new project. This fixture manufacturer — who was different from the one we used on the 600-room hotel — suggested that we do not use gravity-flushing closets in the hotel we were engineering. Instead, the manufacturer recommended his line of pressure-assist water closets for a variety of reasons.

The question immediately arose in my mind: why? If pressure-assist is the standard for hotels, why didn't the other manufacturer for the 600-room hotel recommend it?

I was assigned the task by the principals of my company to find out what this was all about, so I called the head of maintenance engineering at the 600-room hotel where we had specified and had 1.6 gravity-flush water closets installed. I asked him how these gravity units were working out.

I still recall how matter-of-fact he was when he calmly said, "I'm really glad you called. We get about 75 to 100 calls a week to unclog these toilets. It has become pretty routine now. I think ever since they limited the water usage to 1.6 gallons per flush, that's when the problems started. We leave plungers right in the rooms now, so we don't have to be carrying them down the halls in front of the guests. I guess there isn't much we can do about it!"

I was looking at the other manufacturer's letter that recommended pressure toilets on my new project as I listened to his comments. He continued, saying, "We are experiencing tremendous guest dissatisfaction over this clogging, double flushing, and poor performance. But say, I've heard of something that might be worth investigating as long as I have you on the phone. I think they call it pressure toilets. Can you find out if there's anything to this? I've called the fixture manufacturer, too, and they said they are looking into the situation for us. There might not be anything we can do except live with it."

I said I would see what I could do, and hung up the phone. I then called the original manufacturer we used at the 600-room hotel. It turned out that he was already well aware of the clogging problems at the hotel...that he was in the process of re-engineering his fixture, and that he would step up and resolve the situation for the maintenance engineer's and my own satisfaction.

I decided I needed more information before I made our final recommendation between gravity and pressure-assist, so I researched further by calling maintenance engineers around Las Vegas hotels. I found out that they were either installing pressure-assist, or replacing gravity with pressure-assist. One of the casinos actually took out ALL of their gravity toilets and replaced them with pressure-assist! Since they started using pressure, they were able to reduce their service factor on toilets to zero.

I asked around some more, and I heard from people who bought new homes that were disgusted with the 1.6 gravity because of flushing two or three times. Then I remembered that my own relative had a closet off the den with 1.6 gravity that even the kids were not allowed to use because of performance problems. They actually have to go upstairs to the second level toilets.

Well, all of this made our decision easy, and we recommended pressure-assist toilets.

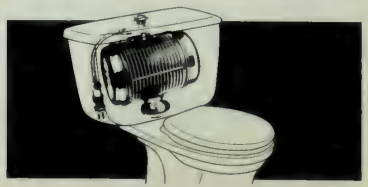
But I also came upon something from my study that was truly amazing: it didn't matter which fixture manufacturer was specified for pressure-assist toilets. All the manufacturers were using the same pressure-assist technology in their pressure-assist fixtures. That technology? Sloan's *FLUSHMATE*® pressure-assist operating system.

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About Joseph Smaul, P.E.

With 44 years of experience, including the first 13 as a pipefitter, Joe Smaul has done it all — from running his own mechanical design contracting company for 16 years to doing consulting engineering for some of the most well-known engineering firms. He has patented energy conservation systems in office systems, and is a member of and frequent speaker at major trade associations in the United States. He is currently doing engineering work at Marvin Waxman Consulting Engineers in Glenside, PA. To contact, or for more information on Sloan FLUSHMATE, call: 1-800-875-9116.



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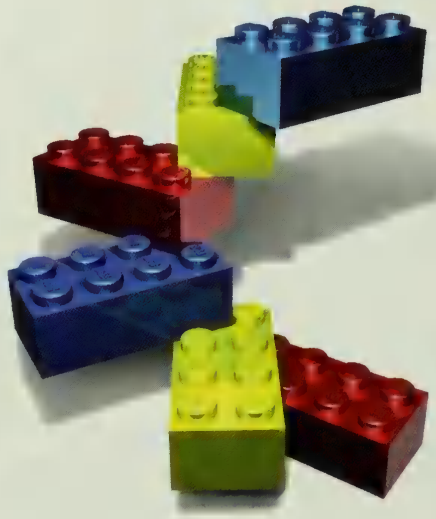
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CIRCLE 17 ON INQUIRY CARD

NEW PUBLICATIONS ANALYZE DESIGNING FOR DISASTER

Publications emerging from two recent conferences will help architects accommodate the forces of nature. The National Multi-Hazard Institute, which convened in August and was funded by the Federal Emergency Management Agency (FEMA), addressed the design implications of flood, fire, wind, and earthquakes. Building technology and performance texts produced by FEMA for the conference include "Seismic Design Basics for Practicing Architects," "Wind Design Basics," and "Flood Protection Basics." For copies, call AIA headquarters or 800/365-ARCH. A second conference, co-sponsored by the AIA and the Japan Institute of Architects, analyzed the Great Hanshin-Awaji Earthquake which rocked Kobe, Japan, in January 1995. The conference addressed response strategies, infrastructure damage, effects on earthquake-resistant buildings, and retrofitting for seismic stability. It produced a pamphlet entitled "Architectural and Planning Lessons from the Great Hanshin-Awaji Earthquake." To order, contact Deane Evans at the AIA. *Ellen Sands*

RABIN MEMORIAL ARCHIVE WILL RISE ABOVE TEL AVIV

On a promontory overlooking Tel Aviv and the Mediterranean Sea, a symbolic cornerstone was laid for the Yitzhak Rabin Center for Israel Studies. Israeli-born architect Moshe Safdie was selected to design the Rabin Center. Its stated purpose is to commemorate a singular leader by teaching the basic values of peace, democracy, equality, and tolerance, and to honor the ability of people of vision and courage. Moshe Safdie also designed Yitzhak Rabin's tomb, located on Mt. Hertzel in the National Cemetery, Jerusalem.

The Rabin Center will be built atop an underground war-time emergency power station, now abandoned. It will include a museum presenting Rabin's life and times, an auditorium, a research institute devoted to the history of the era, a library and archive, and a Great Hall for multipurpose use. The structure will incorporate the old power station in its foundation. Looming above will be a seven-foot-tall glazed pyramid, the roof of the Great Hall. It will open and close with pivoting counterweights according to the season and the time of day. "Though serene in form, the Great Hall is in fact incomplete," said Safdie. "Its severed, ever-shifting shape bespeaks Rabin's disrupted life and the mission which he began, a mission which is yet to be completed." Construction on the 2,667-sq-ft complex is scheduled to begin in the summer of 1998, with completion expected in the year 2000. ***Sally Brown***





ITALIAN EARTHQUAKE RECONSTRUCTION: AN OPPORTUNITY FOR BROADER VISION

The September 26 earthquake, registering 5.5 on the Richter scale, caused grave damage in the Umbria and Marche regions of central Italy. While repair to major monuments and works of art, such as the Basilica of San Francesco in Assisi and its important frescoes by Cimabue and Giotto, will be left to restoration professionals, the great challenge for Italian architects will be to rebuild the hundreds of small towns that give shape to this part of the Italian landscape.

Each town's historic center is encircled by perimeter walls, and has its church, municipal building, piazza, palazzo, and medieval street system. Each represents an urban microcosm of the larger and better known towns of Assisi, Foligno, Gubbio, Camerino, and Urbino. Together, these centers constitute a network of towns that seem to communicate with each other from one hilltop to the next. This structure contributed to the formation of a unique landscape that was stratified, layer by historic layer, over time, a typological recurrence that should inspire professionals dealing with reconstruction to treat the region as a unified and coherent architectural artifact.

Shortly after the initial tremors, art historian Carlo Arturo Quintavalle, in an editorial in the Italian daily *Corriere della Sera,* proposed the designation of an Umbria-Marche National Park to protect the region's extraordinary medieval heritage. "At stake here is the future of the most illustrious urban fabric in Italy, of the landscape that inspired Saint Francis; at stake here is our history," he wrote.

The architects, engineers, and urban planners involved, as well as the hundreds of local governments administering the public funding that will certainly be designated for the area's reconstruction, have their work cut out for them. Will they develop strategies and tools to rebuild this comprehensive regional system? *Ilene Steingut*



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CIRCLE 18 ON INQUIRY CARD



LASER FACILITY TO PROVIDE A SAFER WAY TO TEST NUCLEAR WEAPONS

Construction has begun on the $1.2 billion National Ignition Facility (NIF), a Department of Defense research center at Lawrence Livermore National Laboratory, in Livermore, California, where scientists will use the world's largest laser to re-create the energy of the sun. Designed by AC Martin Partners of Los Angeles, NIF will enable the government to test nuclear materials without detonating any weapons.

The facility consists of two structures linked by an environmentally controlled corridor. One building will house the NIF's laser system, optical switchyard, target chamber, and computer control system. Another will contain 33,000 sq ft of laser optics—more than all the world's telescopes combined.

The project presented design and engineering challenges in stringently tight vibration, temperature, isolation, and radiation-shielding requirements. One such objective: to maintain a temperature constant to 0.5 degrees in a building as big as a football stadium.

NIF research will help establish a model for economical electric power generation using fusion as an alternative energy source. Scientists think that fusion-based electrical power may be more benign and cheaper than other forms of large-scale power production.

But the project is not without detractors. It has been criticized for costs, and some scientists question its effectiveness in fully measuring the reliability of nuclear weapons. Local environmental groups challenged NIF's health and safety risks in court, but failed to convince a judge to stop the project.

ARCHITECTS CONVENE IN CHICAGO TO DEBATE MODERNISM AFTER MIES

Is it possible to go beyond Mies?

Debate swirled around this question, which is the premise of a design competition for a new student center, at a weekend symposium at the Illinois Institute of Technology (IIT) in September.

The answer is no, according to some in the Miesian old guard. It took a thousand years of refinements to produce Chartres and the Parthenon, said longtime IIT professor Arthur Takeuchi, but Mies brought his brand of Modernism to Chicago from his native Germany a mere 59 years ago. "I think our attention span is too short," Takeuchi said.

As the colloquium convened, a new edition of "The 311 Best Col-leges" was published by the *Princeton Review.* It rated the mostly Mies-designed campus the nation's "least beautiful." This inconveniently timed news item enlivened the event.

Mies's defenders said the low ranking showed how far advanced his designs were and still are. "I think Mies would be very gratified," quipped Columbia University architectural historian Kenneth Frampton. Yet University of Illinois at Chicago historian Robert Bruegmann replied that most nonarchitects think IIT's boxy brick-and-steel buildings resemble factories.

Even Mies's grandson, Chicago architect Dirk Lohan, acknowledged that "the students of this campus deserve a building they can like, even love."

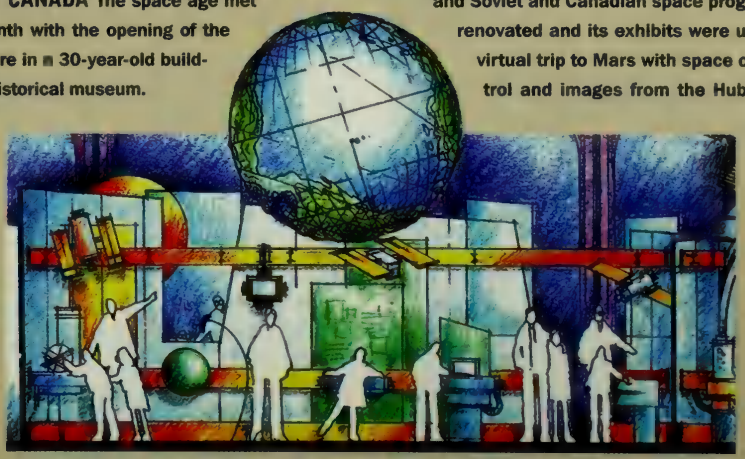
But Lohan added that Mies was able to go beyond himself, recalling how his grandfather broke his own Modernist rules when they no longer suited his creative purposes. "Life means change, and life without change is death," Lohan quoted Mies as saying.

During the event, IIT expanded the area where the campus center will be built after the finalists deemed the original site—catty-corner from that Miesian icon, Crown Hall, and along a branch of Chicago's elevated tracks—too restrictive. The change allows the campus center to reach over or under the tracks and to face Crown Hall directly.

The five finalist teams—Peter Eisenman, FAIA; Zaha Hadid; Rem Koolhaas; Helmut Jahn, FAIA, and Werner Sobek; and Kazuyo Sejima and Ryue Nishizawa—all attended the conference. They were selected on the basis of statements and portfolios and will submit their proposed designs in January. A five-member jury chaired by Atlanta architect Mack Scogin, Jr., AIA, will announce the winner in February. *Blair Kamin*

BACK TO THE FUTURE IN CANADA **The space age met history in Vancouver last month with the opening of the $6 million Pacific Space Centre in a 30-year-old building that also houses a local historical museum.**

Designed by Aldrich Pears Associates, Vancouver, the center comprises 6,300 sq ft in three wings. Two wings house multimedia theaters devoted to interactive presentations about space travel, and the third contains a gallery with exhibitions and artifacts from NASA, the Smithsonian Institution, and Soviet and Canadian space programs. An existing planetarium was renovated and its exhibits were updated. New attractions include a virtual trip to Mars with space communications from mission control and images from the Hubble telescope, recharging a solar energy device close to the sun, and surviving a meteor storm. There is also an interactive "Cosmic Courtyard" exhibition with five custom-designed computer-animated video games. The building's central rotunda, which includes a suspended stained glass and stainless-steel fountain, was restored by Matsuzaki Wright Architects Inc., Vancouver. ***Albert Warson***



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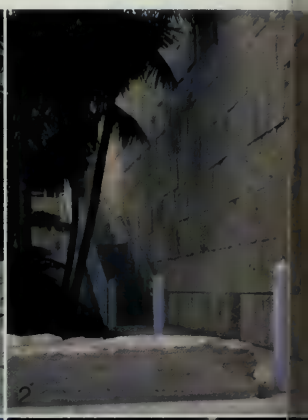
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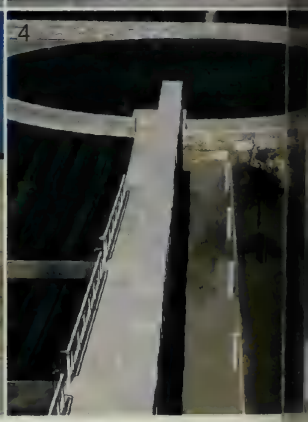
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MEMORIAL USES GLASS AND LIGHT TO HONOR WOMEN IN THE MILITARY

After an eight-year campaign, the memorial to Women in Military Service to America was dedicated October 18 in Arlington, Virginia. The commission had been awarded in 1989 to Weiss-Manfredi Architects of New York City after a two-stage competition.

Intended to commemorate contributions of women from all branches of military service throughout the nation's history, the project was hampered by less-than-successful fundraising, an indication, some think, of the attitude toward women in the military.

The scheme takes an existing design element, the hemicycle at the end of the Memorial Bridge, and resculpts it. The original structure was a decorative retaining wall designed by McKim, Mead & White. Its statuary and inscriptions were meant to be viewed while crossing the Memorial Bridge.

In the new scheme, an area behind the wall was excavated to create exhibition and theater space. The wall was also perforated to create exterior stairways leading to a roof plaza. Now visitors move over, above, and through the wall.

The architects etched the names of women onto skylights, through which light falls, casting the shadows of the names on vertical marble panels lining the interior space. Depending on the season, time of day, and cloud coverage, the light becomes a source of movement and mood.

The shadows of people walking on the roof deck cascade onto the panels below, in a poetic rendering of notions of the past and the temporality of this world. *Ellen Sands*



NEW MARKETING MATERIALS WIN THE STAMP OF APPROVAL

As the Society for Marketing Professional Services (SMPS) approaches its 25th anniversary, architects no longer shy away from the concept of marketing. In fact, this year's SMPS awards show that, having accepted brochures and direct mail as a matter of course, architects are looking for new ways to catch the attention of clients.

A whimsical set of stamps featuring portraits of firm personnel wearing building projects as hats did just that for Seattle-based GGLO, an architecture and interiors firm. The stamps were so original they also won "Best of Show," a discretionary category reserved for unique and unusual entries. Another atypical submission was a mug of Irish breakfast tea, complete with tea bag, announcing a merger between John Ireland and Harrison Associates of Auburn, Maine.

Recognizing the expanding field, this year's awards included two new categories, special events and Web sites. *Gerald Moorhead*

ARCHITECTURAL PRESS ROUNDUP

ARCHITECTURE AS CORPORATE IDENTITY

The New York Times, September 17, 1997 Once again, architecture is functioning as corporate logo, and Big Blue is leading the way. IBM's sprawling new headquarters in Armonk, New York, signifies "the postmodern, postdownsizing, employee-empowerment era that the company now represents." The solemn old IBM building, designed by Skidmore, Owings & Merrill, "was a classic example of the corporate architecture of the cold war era," its design giving few clues to what went on inside. The new building, by Kohn Pedersen Fox, announces, "We're creative, we're innovative, we value our people."

HOMEOWNERS EVICTED BY MALL

U.S. News & World Report, September 15, 1997 When America's Founding Fathers framed the Constitution, they included the concept of "eminent domain," which allows government to take private property for public use. That concept is being stretched to its limit now as the difference between the public and the private realms blurs. In Hurst, Texas, a suburb of Fort Worth, the local government voted to condemn the property of 100 homeowners so that the town's biggest taxpayer, the North East Mall, could expand. But is this what urban theorists meant when they noted that private malls have become America's new main streets?

WHAT BECOMES A LEGEND MOST?

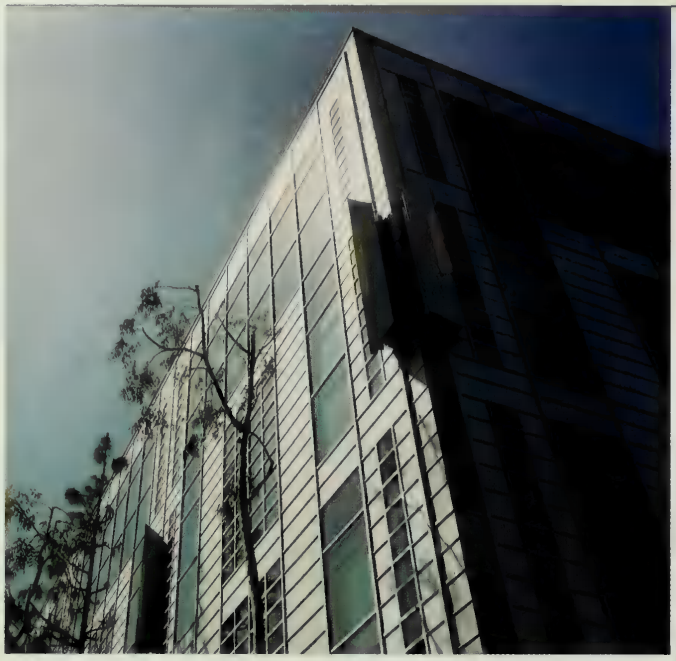
The Philadelphia Inquirer, October 2, 1997 Eighty-seven-year-old urban planner Edmund Bacon, whose ideas guided a generation of development in Philadelphia and whose book *The Design of Cities* helped to educate a generation of architects and planners, seems determined to go out with a bang, not a whimper. At a public hearing about Philadelphia's Independence Mall, Bacon shouted down a moderator who tried to curtail his negative comments on the latest scheme designed by landscape architect Laurie Olin. Bacon left by a side door before the meeting ended, telling a reporter that he'd rather spend his time on his memoirs, whose working title is *How it Happened.*

THE TALK OF L.A.

The New Yorker, September 29, 1997 Critic Kurt Andersen gave high praise to Richard Meier's Getty Center, opening this month on a hilltop overlooking Los Angeles. According to Andersen, Meier successfully avoided the oppressive sense generated by the "machined-looking repetitiveness" of many big modernist buildings. But he had help: a complex and composite program underscored by an enormous budget. The critic concluded "that the terrible thing about most postwar modernism was not the style but the budgets (too small) and the scale (too big)."

HOW TO UPDATE A MODERNIST ICON

The Atlantic Monthly, October 1997 Noting that "architectural modernism is now more than seventy years old," historian and critic Witold Rybczynski cautioned architects not to confuse Modernism with newness, as some of the entrants in the Museum of Modern Art's recent design competition for its own expansion seemed to do. Though it may sound like an oxymoron, "modernism does have a tradition—a rather long one," he wrote.



SKUNK WORKS BUILDING RENOVATION: FROM AIRCRAFT TO ANIMATION

It was where some of the world's most advanced airplanes were designed when Lockheed Aircraft owned the Burbank, California, site. After renovation by The Landau Partnership, Santa Monica, the Skunk Works building, as it was formerly known, is now home to the Disney Feature Animation unit.

The transformation of the 225,000-sq-ft, four-story building, which was nicknamed after a dark and magical place in the 1940s Li'l Abner cartoon, was called the best renovation in the West by the California Building Industry Association's Gold Nugget Awards.

"Our goal for this building," said architect Thomas Landau, "was to design an environment conducive to creativity. And for an occupant such as Disney, this immediately translated into an ambience of whimsy and informality."

The architecture is playful, with colorful, decorative lighting on the building exterior and canted interior corridor walls. The interiors were designed by Lauren Rottet of DMJM/Rottet. In addition, imaginative new fenestration was created to generate maximum light in a structure that formerly had minimal windows due to stringent security requirements.

The maverick design approach that prevails at the Skunk Works Studio, as it is now known, extends to the executive suites. Sun-illuminated corner spaces are utilized for stairwells, not reserved for high-powered executives. The reason: the energetic Disney folks are more interested in speedy, pleasant journeys from floor to floor than they are in corporate hierarchy.

The building is the first phase of a $220 million, 16-acre corporate entertainment campus being developed by M. David Paul & Associates.

CULTURAL LANDSCAPES QUALIFY AMONG WORLD'S ENDANGERED SITES

It's not just buildings and monuments. That's one of the messages coming from the World Monuments Fund (WMF) 1998–99 List of 100 Most Endangered Sites. Three cultural landscapes and four historic city centers are on the latest World Monuments Watch, which includes sites in 55 countries.

Today, commercial development threatens unique places such as Lancaster County, Pennsylvania, where the Amish have built and farmed for three centuries; the South Pass Cultural Landscape in Wyoming; and the Abava Valley Cultural Landscape in Latvia. The historic centers of Prague, Czech Republic; Tbilisi, Georgia; Irkoutsk, Russia; and Kampong Cina, Malaysia, also made their way onto the latest Watch, the second listing since the WMF created the program in 1996.

Just as remarkable as the sites placed on the list are the ones removed because they have been repaired and therefore are no longer considered "endangered." Out of the 100 sites on the first list, only 25 remained on the 1998–99 roster. "It's tremendously important, as we issue our second List of 100 Most Endangered Sites, to let people know that the World Monuments Watch has been a success," said Bonnie Burnham, WMF president.

The WMF, with funding from American Express, the Samuel H. Kress Foundation, and other groups, provided $3 million in grants to 48 sites on the first list, prodding governments to join community groups in rebuilding. *Clifford A. Pearson*



The endangered Uch Monument Complex, Punjab Province, Pakistan.

CONTRACTORS (RELUCTANTLY) ENDORSE NEW AIA DOCUMENTS By a 130–67 vote, the Associated General Contractors board endorsed a revised version of AIA's A201—The General Conditions of the Contract for Construction, a basic document for owners and contractors. The vote came September 29 at AGC's mid-year meeting in Albuquerque. The new A201 was highly controversial among contractors and required a roll-call vote, a rare event for the AGC board. The provision drawing the most criticism dealt with delegating design responsibilities to contractors. Officials at AGC and AIA agree that design delegation has been increasing for some time, affecting areas such as curtain walls, precast concrete, and steel connections. "This isn't like new doors are opening," said Robert F. McCoole, president of J.S. Alberici Construction Co., St. Louis, an AGC member who supports the new contract. Still, a vocal minority of AGC board members opposed the rewrite, worried that architects are shifting risks to them. McCoole said opponents tended to be from smaller firms. But Dale Ellickson, counsel to AIA's contract documents program, denied that the new provisions transfer risks. Instead, Ellickson said, the document attempts to provide more certainty over delegation. The document says that the designer-of-record must establish required criteria for delegated design. It also prohibits delegation unless contract documents require it, and it says delegation cannot take place in a state where a statute prohibits it. *Tom Ichniowski*

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CIRCLE 20 ON INQUIRY CARD



FOR ARCHITECTS IN THE PANHANDLE, NEW URBANISM WITH A TEXAS TWANG

Several recent New Urbanist projects in Texas have drawn upon indigenous ideas to create a sense of place and forge a connection with local history. Alliance Development recently held a design charrette to develop building prototypes for the 2,500-acre Texas Town in the expanding area north of Dallas/Fort Worth. Larry Speck, Dean of the University of Texas School of Architecture, challenged a group of practitioners from around the country to consider orientation and use of local materials to find concepts that reflect an architecture suitable for Texas. The plan for the town, sited on the shore of a 40-acre lake, is a simple grid focusing on a town square typical of settlements planned by the Spanish settlers. Stone facades, metal roofs, and covered sidewalks lend a small-town atmosphere. The lake side of the square is anchored by a resort hotel that will provide a destination while other commercial activities are developed.



Texas Town, in the rapidly growing suburb north of Dallas/Fort Worth.

On the Gulf Coast adjacent to Galveston, the 220-acre Beachtown project by Duany Plater-Zyberk & Co. uses a modified grid to continue the flavor of the historic neighborhoods nearby. Since the project is beyond the protection of the sea wall and close to sea level, houses and other buildings are designed with a raised first floor and breakaway ground floors, another native characteristic. Near the center of the scheme is Main Street, lined with mixed-use retail and anchored at the shore with a beachfront hotel. The neotraditionalist design standards for front porches, metal roofs, and picket fences will fit in well with Galveston's Victorian vernacular. As in Texas Town, mixed-use commercial buildings will be built along with the housing to improve the chances of success in community building.

On a much smaller scale is the 38-acre Traditional Neighborhood project in the Woodlands north of Houston by Peter Brown Civic Design. Adjacent to existing town homes and a shopping center, the plan incorporates a core of narrow lots served by rear alleys, pedestrian promenades, and a small neighborhood commons. Although it includes only single-family lots, the scheme provides an example of new urbanist infill within a typical suburban district. *Gerald Moorhead*

COLORADO MINING TOWNS ARE GAMBLING ON PRESERVATION

Seven years ago Colorado voters approved a plan to bring gambling to three moribund mining towns: Black Hawk, Central City, and Cripple Creek. A percentage of the gaming receipts was to be used to restore and maintain the towns' historic buildings.

Business is now booming, especially in Black Hawk. Many of the town's Victorian buildings have, indeed, been restored, at least superficially.

But preservationists are crying foul. Eagle Gaming, owner of Black Hawk's Canyon Casino, wants to move the town's oldest building, the Lace House, in order to expand its parking lot. The company offered the town, which owns the house, nearly $3 million to move it and three other old homes 300 feet away to a "historic village." The city council approved the deal, setting the stage for a fierce battle between preservationists and developers.

Built in 1863, the house is an example of a vernacular style known as Carpenter Gothic. "It's a little jewel," said Edward G. White, Jr., AIA, who helped restore the building in 1976.

White was friends with Jack Kerouac in the 1940s and 1950s and is something of a legend in Colorado. For the Lace House restoration he enlisted the help of the late poet Allen Ginsberg. White says the house should stay put. "That's where the history happened," he says. "Anywhere else, it just becomes an exhibit."

The move seemed like a done deal until former Black Hawk mayor Frances Olson remembered a $10,000 grant from the National Park Service to help restore the house. To get the money, Olson signed a 30-year contract agreeing that the Colorado Historical Society would have to approve any changes made to the house. The society took the matter to court, and in October a judge issued a temporary injunction preventing the house from being moved until a permanent decision can be reached.

But for the preservationists, a victory in court may turn out to be a Pyrrhic one at best. Eagle Gaming says if it can't move the Lace House, it will build the new parking lot around it.

"Even if the building stays where it is, it's going to look awful," admits Lane Ittelson of the historical society. "And when the contract expires in 2006, Black Hawk can tear it down, if that's what they want to do." *David Hill*

Preservationists battle casino owners over relocation of the Lace House, a historic structure in the former mining town of Black Hawk, Colorado.



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CIRCLE 21 ON INQUIRY CARD

NEWS BRIEFS

Yale names architect for art school building The office of Deborah Berke, AIA, has been selected to design a building for Yale University's School of Art, to be located at 1156 Chapel Street. The site, formerly occupied by the Jewish Community Center, was purchased by the University in December 1996. The project is expected to be completed by the spring of 1999. Berke is an associate professor of architectural design at Yale, where she has been on the faculty since 1987.

The healing environment that lived in a shoe Enhancing children's awareness of the link between health and the built environment is the goal of the ShoeBox Adventure, part of the Tenth Symposium on Healthcare Design, held November 20–23 in San Diego, California. One thousand fourth graders will assemble at the San Diego Children's Museum to design shoebox-sized healing environments for exhibition at the symposium. The museum will host a reception for the project on Friday, November 21. The shoeboxes will not be graded, according to Annette Ridenour, chairperson of the Local Host Committee, but trends and themes that emerge will be discussed.

Architects hold a virtual debate "Excellence in Design Online" featured Peter C. Pran, AIA, of NBBJ, William Pedersen, Jr., FAIA, of Kohn Pedersen Fox Associates, and Graham Gund, FAIA, of Graham Gund Architects, in a virtual lecture series about the impact of Internet technologies on the future of design. Sponsored by Autodesk, Inc. and Cornish Productions, the four-part series included a real-time question-and-answer session and a virtual tour through design drawings. Highlights of the event can be found at www.autodesk.com and www.cornish productions.com.

Lightning strikes in Michigan What telephone poles were in the past, cellular-phone relay towers are today. They dot the landscape, where they are placed to satisfy transmission requirements, not aesthetics. When Airtouch Cellular sought to build a tower in Ann Arbor, Michigan, their site fell in the midst of Domino's Pizza World Headquarters. Domino's President, Tom Monaghan, agreed to lease the land on the condition that the tower be designed by Gunnar Birkerts, FAIA, the architect for the pizza company's complex. The result: a cobalt blue steel tower shaped like a bolt of lightning, metaphorically connecting the earth to the sky.

Cellular tower, Ann Arbor, Michigan, designed by Gunnar Birkerts, FAIA.



Future shock What form will the work surface of the future take? The question was posed in a competition for under-forty-something design professionals by the Young Architects Committee of AIA Chicago. The answers say a lot about the future of work. First place went to Mark Gee of Venice, California, for a combination drafting screen, multiple input stylus, view control remote, and goggles designed to facilitate three-dimensional design. Keith Moskow of Boston took second place with an earth-berm lawn chair that provides

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a place to connect with nature as you work. Third place went to The Flip 360 by Robert Chambers and Paul Somers of Chicago, a desk that folds into itself for home office use and other places where space is at a premium.

Research consortium formed Ten workplace industry leaders recently joined to create the Center for the Built Environment (CBE) at the University of California's Berkeley campus. The consortium will provide resources for building-related research. Initial efforts will focus on building performance evaluation and new technology. The CBE plans to develop new tools to evaluate occupant satisfaction, indoor environmental quality systems, operating conditions, and energy efficiency. Participants include the International Facility Management Association, the Bank of America, Herman Miller, Inc., the U. S. Department of Energy, and the U. S. General Services Administration.

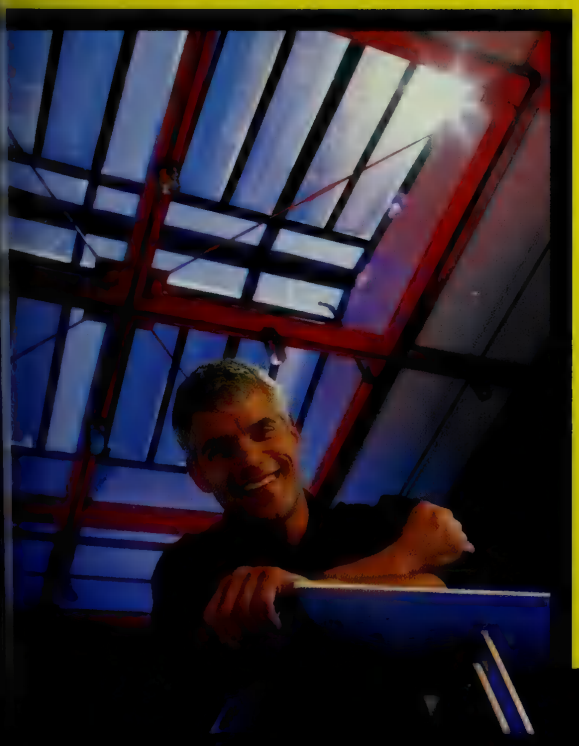


Rendering of Shaker-inspired Shady Hill School, Cambridge, Mass.

Shaker village inspires school design The Shady Hill School of Cambridge, Massachusetts, consists of one-story classroom buildings loosely organized around a series of greens. When Perry Dean Rogers & Partners Architects were commissioned to expand the campus, they turned to an 1836 rendering of a Shaker village for inspiration on how to integrate a new upper school into this tightly knit educational village. The program calls for the replacement of three buildings and the renovation of a fourth to house 12 classrooms and related support functions.

Ellerbe Becket to appeal ADA ruling Ellerbe Becket, Inc. will appeal a federal judge's decision that paves the way for a U.S. District Court in Minnesota to determine if architects can be held liable for their designs under the Americans With Disabilities Act. On September 30 Judge John R. Tunheim denied the architect's request to dismiss a lawsuit brought by the Justice Department. The government alleges that six arenas designed by the firm are not in compliance with the ADA and that architects, like project owners, are responsible for compliance with the law.

From warehouse to museum in North Dakota The former home of the International Harvester Corp. in downtown Fargo, North Dakota, was transformed into the Plains Art Museum by Hammel Green and Abrahamson, Inc. of Minneapolis. The challenge was to take a structure with very little heat and humidity regulation and create within it an environmentally controlled core for storage, preparation, and exhibition of works of art. ■



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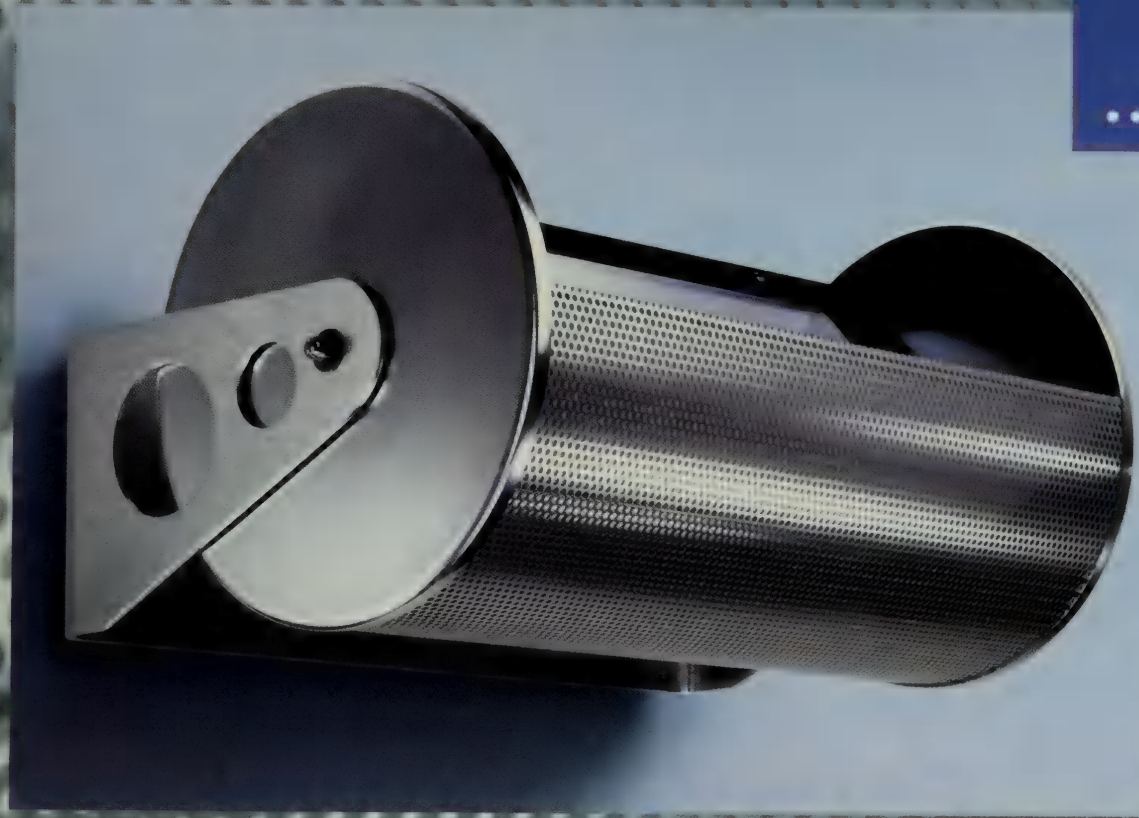
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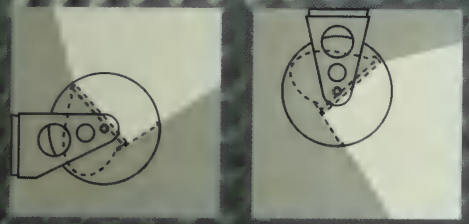


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Calendar

November 3–28
Gund Hall Gallery, Harvard University
Cambridge, Massachusetts
"Dan Kiley, Landscape Architect: The First Two Decades," presented by the Harvard University Graduate School of Design, covers early works by the legendary designer. In conjunction with the exhibition, a symposium is scheduled for November 14. For further information, call the GSD Office of Lectures and Exhibitions at 617/495-4784.

November 6–December 5
Arthur A. Houghton, Jr., Gallery,
Cooper Union
New York City
"Joze Plecnik and the Prague Castle" documents the proto-postmodernist architect's extraordinary 15-year renovation of a pre-Romanesque Czechoslovakian castle. The fortress was destroyed and rebuilt several times before being resuscitated by the leader of the country's short-lived democracy, President Masaryk, in 1920. Call 212/353-4232.

November 11–January 18, 1998
American Craft Museum
New York City
"Four Acts in Glass: Installations by Chihuly, Morris, Powers, and Vallien" presents the work of four artists who have moved beyond the making of glass objects to examine the medium in larger spatial, architectural, and theatrical settings. For the exhibition Dale Chihuly, William Morris, Pike Powers, and Bertil Vallien have created site-specific installations that encompass all of the galleries of the museum, including a multistoried glass structure in the atrium. Call 212/956-3535.

November 12–December 19
Van Alen Institute
New York City
"Designing Islands: The Public Future of New York's Archipelago" offers the first New York showing of entries from "Ideas Afloat," an international competition for the design of Davids Island (off New Rochelle). It also places the entries in the context of design initiatives for New York's other islands, including projects for Governors Island and Randall's Island. Call 212/924-7000.

November 12–March 1, 1998
Philadelphia Museum of Art
Philadelphia
"Philippe Starck Designs/Reinventing the American Hotel" provides a sampling of the French designer's objects and interiors, featuring everything from furniture to utensils. Also on view will be elements from a guest room at the Paramount Hotel. Call 215/763-8100.

November 18–20
World Trade Center
Boston
More than 8,500 architects, engineers, builders, contractors, facilities managers, specifiers, and other industry professionals are expected to attend the 13th annual Build Boston trade show, sponsored by the Boston Society of Architects. Among the topics to be covered in more than 180 workshops are "Making Main Streets Come Alive: Solutions for Street Trees in Urban Projects," "Multimedia Innovations in Retail Design," "What Getting 'Wired' Really Means," and "Firestopping: Changes and Challenges." More than 250 suppliers of building products and materials will present their wares. Among the event's other presentations is "Bringing the Past into the 21st Century: Policy, Materials, and Systems," a conference series on preservation and restoration issues. For information, call 800/544-1898.

November 19
National Institute of Building Sciences
Washington, D.C.
The use of sustainable building insulation materials will be the focus of discussions at a one-day symposium sponsored by the Building Environment and Thermal Envelope Council (BETEC) of the National Institute of Building Sciences. Presenters will address findings and the practical application of indigenous, recycled, and waste materials such as pumice, flyash, sawdust, perlite, wood fibers and agricultural straw for sustainable and efficient insulation. Topics include design approaches, construction techniques, laboratory field testing, case studies, and code issues. For information, call Pat Cichowski at BETEC at 202/289-7800; fax 202/289-1092; or E-mail pcichowski@nibs.org.

November 20–23
San Diego Hyatt Regency Hotel
San Diego, California
Educational sessions and a new-product exhibition will be offered at the Center for Health Design's Tenth Symposium on Healthcare Design. Contact Center for Healthcare Design, 4550 Alhambra Way, Martinez, Calif. 94553; call 510/370-0345; or E-mail CTR4HD@aol.com.

Through November 25
Chicago Architecture Foundation
Chicago
"SOM at Sixty" displays more than 200 building models of projects by Skidmore, Owings & Merrill from the last 15 years, documenting the Chicago-based firm's design process. Call 312/922-3432.

Through November 29
Couturier Gallery
Los Angeles
Architectural renderings produced primarily in the 1950s and 1960s by the modernist architect Richard Neutra are on view, as well as prototypes of furniture he designed in the 1930s. Call 213/933-5557.

Through December 3
Architectural League, Urban Center
New York City
"An Architecture of Independence: The Making of Modern South Asia" celebrates four pioneering architects whose work has largely defined the contemporary architecture of South Asia: Muzharul Islam of Bangladesh and, from India, Charles Correa, Balkrishna Doshi, and Achyut Kanvinde. City planning and residential projects, universities, and cultural and institutional facilities are presented through drawings, models, and photographs. A symposium, "An Architecture of Independence: Modernism and the Next Generation," will be held November 15 at the Asia Society, New York City. Call 212/753-1722.

Through December 7
National Building Museum
Washington, D.C.
"Sheltered by Design" presents exemplary low-income housing projects from across the country, including Cleveland's Renaissance Village and Boston's Harbor Point. Through photographs, renderings, and floor plans, the exhibition illustrates the relationship between good design and the success of public housing. Call 202/272-2448.

Through December 7
Museum of the City of New York
New York City
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December 9–January 17, 1998
Storefront for Art and Architecture
New York City
An exhibition of projects by Gordon Kipping documents his work revitalizing urban structures, particularly on New York's Lower East Side. Call 212/431-5795.

December 11–February 8, 1998
Municipal Art Society
New York City
"The Bronx Community Paper Company: Designing Industrial Ecology" chronicles the design evolution of a state-of-the-art recycling plant and paper mill by New York architect Maya Lin. Call 212/935-3960.

December 12–January 24, 1998
Architectural League, Urban Center
New York City
The work of 20th-century modernist Charlotte Perriand, who began her career working in collaboration with Le Corbusier and Pierre Jeanneret on interiors and furniture, is the focus of a retrospective exhibition. Furniture, lighting, and photographs will be displayed. Call 212/753-1722.

December 19–March 10, 1998
San Francisco Museum of Modern Art
San Francisco
"Zaha Hadid: Painted Projects" is the first solo museum presentation of the work of the Iraqi-born British architect. The exhibition includes two dozen of the architect's paintings, which depict cities and buildings in assemblages of exploded lines and planes. Her competition-winning designs for The Peak Club in Hong Kong and the controversial first-place scheme for the Cardiff Opera House in Wales are among the works on view. Call 415/357-4000.

Through December 28
Orange County Museum of Art
Newport Beach, California
"Frank Lloyd Wright: Designs for an American Landscape" explores five little-known visionary projects by the architect. More than 150 drawings from the Frank Lloyd Wright Foundation and the Library of Congress are included. Call 714/759-1122.

Through December 31
Baltimore Museum of Art
Baltimore
Paintings and decorative arts objects by Baltimore artists, silversmiths, and cabinetmakers completed between 1790 and 1820 are on view in "Celebrating Baltimore's Birthday." The exhibition honors the 200th anniversary of the incorporation of the City of Baltimore and inaugurates the reopening of the museum's John Russell Pope building. Call 410/396-7100.

Through January 4, 1998
Fogg Art Museum, Harvard University
Cambridge, Massachusetts
"Rome and New York: A Continuity of Cities," an exhibition of prints from Piranesi to the 20th century, examines Rome's image as an ancient center of power and religion and New York's as the epitome of the modern city. It also demonstrates how each city has at times embodied the qualities associated with the other. Call 617/495-2397.

Through January 4, 1998
Katonah Museum of Art
Katonah, New York
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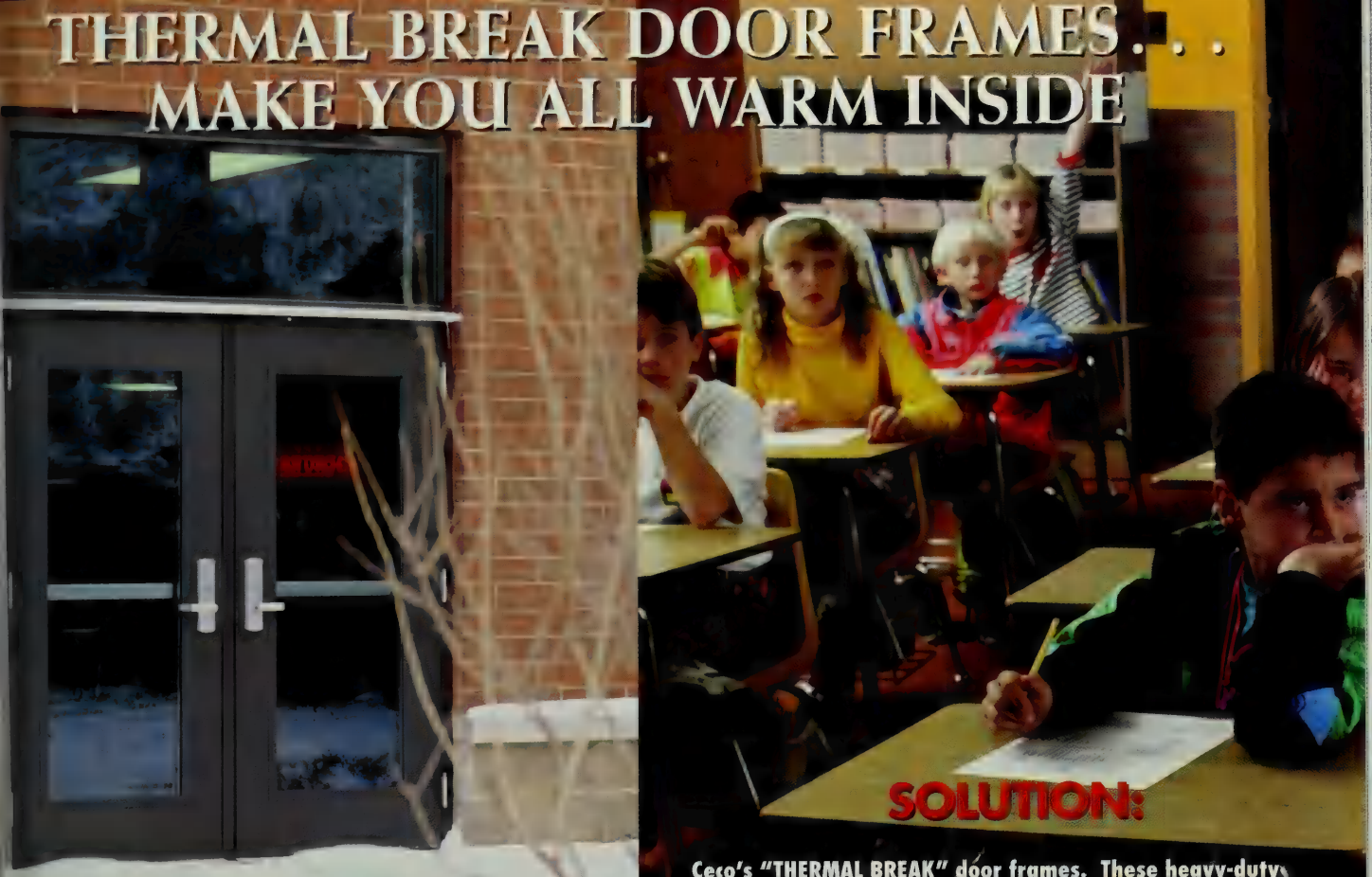
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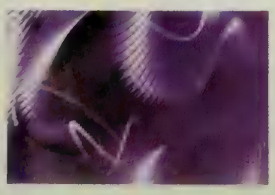
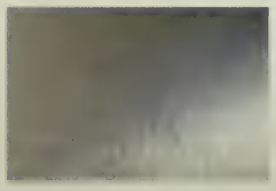
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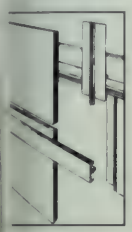
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Through January 4, 1998
Vitra Design Museum
Weil-am-Rhein, Germany
"The Work of Charles and Ray Eames: A Legacy of Invention" documents the work of the renowned modernist architect/designers. Call 49/7621/702-3200.

Through January 11, 1998
Cooper-Hewitt Museum
New York City
"Design for Life: A Centennial Celebration" takes a look at "the central role design plays in our lives." The exhibition includes 200 objects from the museum's collection, ranging from examples of industrial and graphic design to textiles and wall coverings. Call 212/849-8420.

Through January 17, 1998
Columbia University
New York City
Columbia University is presenting three exhibitions to celebrate the 100th anniversary of its Morningside Heights campus in Manhattan: "Mastering McKim's Plan: Columbia's First Century on Morningside Heights" (at the Miriam and Ira D. Wallach Art Gallery in Schermerhorn Hall), "Constructing Low Memo Memorial Library: A Chronicle of a Monumental Enterprise" (in the library's rotunda), and "Morningside Heights: Studio Projects for the Centennial" (through November 15 in the Arthur Ross Architecture Gallery, Buell Hall). Call 212/854-2877.

Through January 18, 1998
Walker Art Center
Minneapolis
"The Architecture of Reassurance," organized by the Canadian Centre for Architecture (CCA) in Montreal and curated by University of Minnesota Professor of Art History and American Studies Karal Ann Marling, includes 350 plans, drawings, and models from the archives of Walt Disney Imagineering. Call 612/375-7622.

Through February 1, 1998
Canadian Center for Architecture
Montreal
"Other Soundings: Selected Work by John Hejduk, 1953–1997" is the first retrospective of this major architect and *(continued on page 204)*



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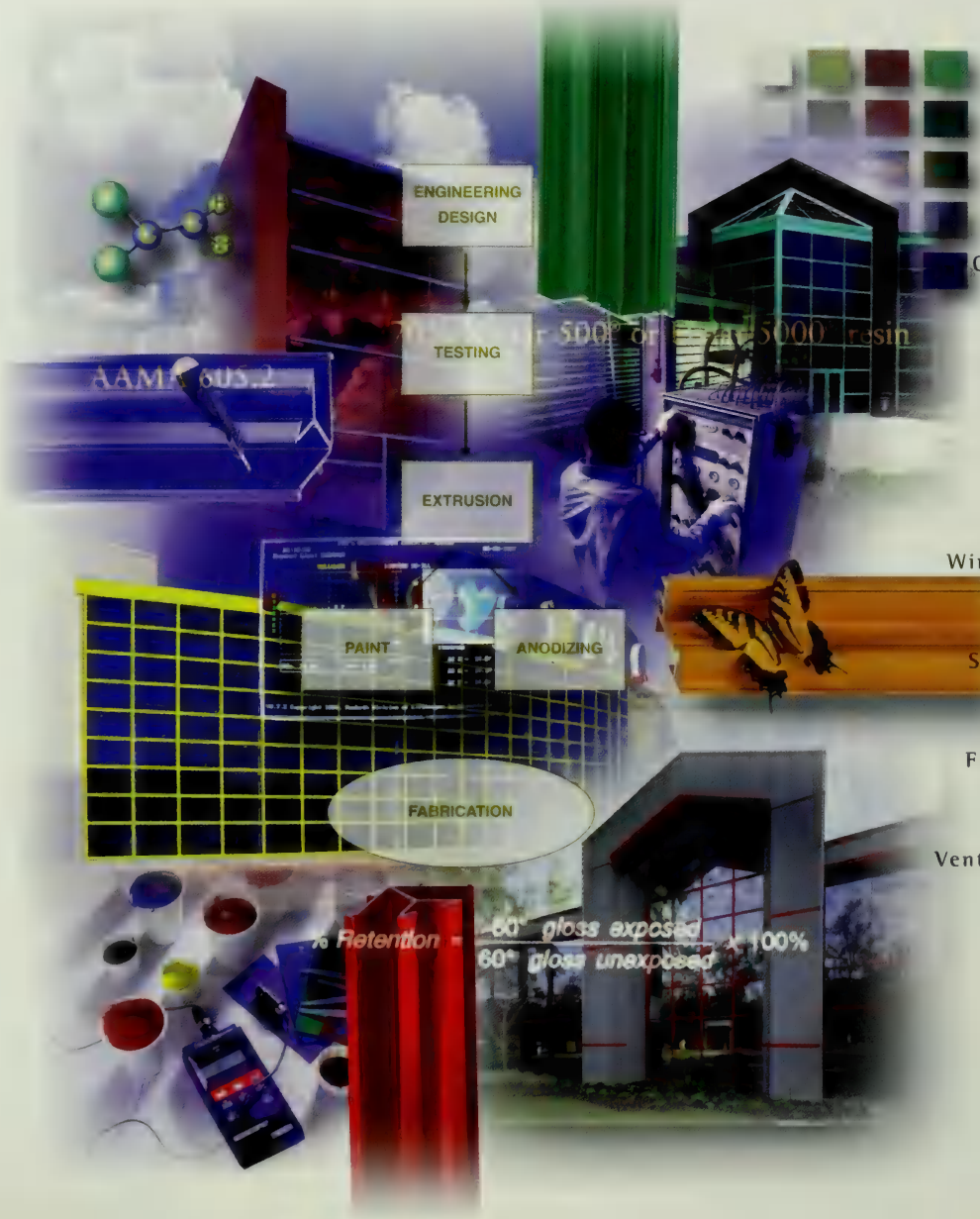
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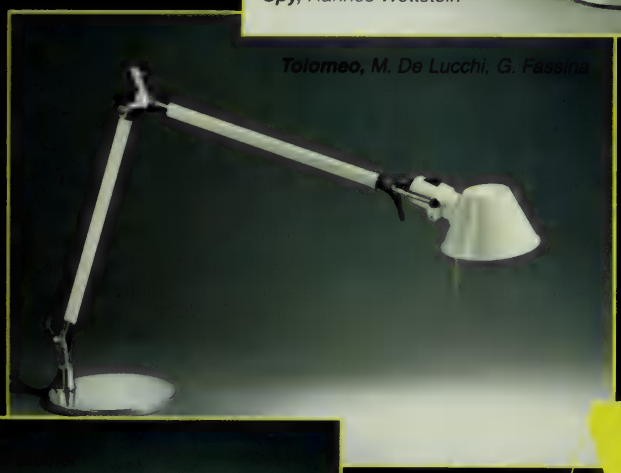
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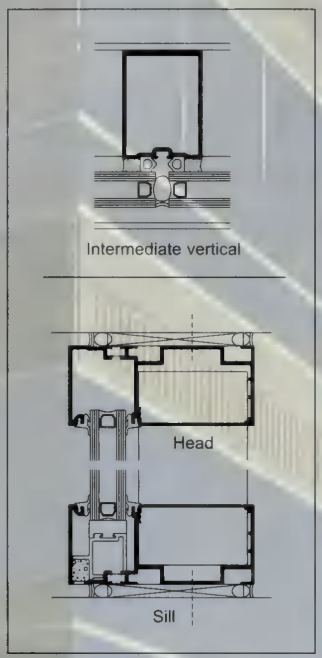




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Playing the Competitions GAME

DESIGN COMPETITIONS GENERATE A LOT OF PUBLICITY. BUT ARE THEY WORTH THE EFFORT?

by David Dillon

Nineteen ninety-seven may be remembered as the year of the competition, or at least the year when competitions made more architectural news than anything else. In January, the Museum of Modern Art (MoMA) in New York City announced an international designer bake-off for the renovation and expansion of its West 53rd Street building, with the winner to be named—perhaps—in December. That would coincide bicoastally with the opening of Richard Meier's Getty Center in Los Angeles, the most coveted competition prize of the 1980s. In May, the Modern Art Museum of Fort Worth presented Tadao Ando with his first major American commission, only a few weeks before three young architects from Berlin won the international competition to design a memorial to the victims of the Oklahoma City bombing.

The winning proposal for the World War II Memorial on the mall in Washington, D.C., by Friedrich St. Florian, received the same angry critical reception as the neighboring Franklin Delano Roosevelt Memorial, which opened in May, a mere 23 years after Lawrence Halprin won the final competition. Major competitions are under way for a new student center at the Illinois Institute of Technology in Chicago, across from Mies van der Rohe's Crown Hall, and a new campus for the University of San Francisco, as well as for assorted new towns, town centers, and government buildings around the country.

While nobody is keeping score, the consensus is that 1997 has been a very big year for competitions.

IF LOCAL COMPETITIONS PROVIDE MAJOR OPPORTUNITIES FOR YOUNG ARCHITECTS, THE SPLASHY INTERNATIONAL ONES CAN BE SWAMPS OF POLITICAL INTRIGUE.

Bottomless optimism or hopeless naivete

"It's surprising and somewhat anomalous," says architect Donald Stastny of Portland, Oregon, a professional advisor on Oklahoma City and other major competitions. "Usually you see a lot of competitions when the economy is bad. In good times you may pick up the young firms that don't have a lot of work. But this year even the stars are participating." Whether this is evidence of bottomless optimism or hopeless naivete is unclear. Enthusiasts consider competitions an essential tool for raising public awareness of good design while also bringing young talent into the spotlight.

"Competitions that are well done are enormously beneficial to the profession," explains architect Paul Spreiregen, another professional advisor whose competitions include the Vietnam Veterans Memorial. "Because of the power of the magazines, the real breadth of American design doesn't get the recognition it deserves. We have a distorted view of what's out there. Competitions can present the whole spectrum."

The argument against competitions

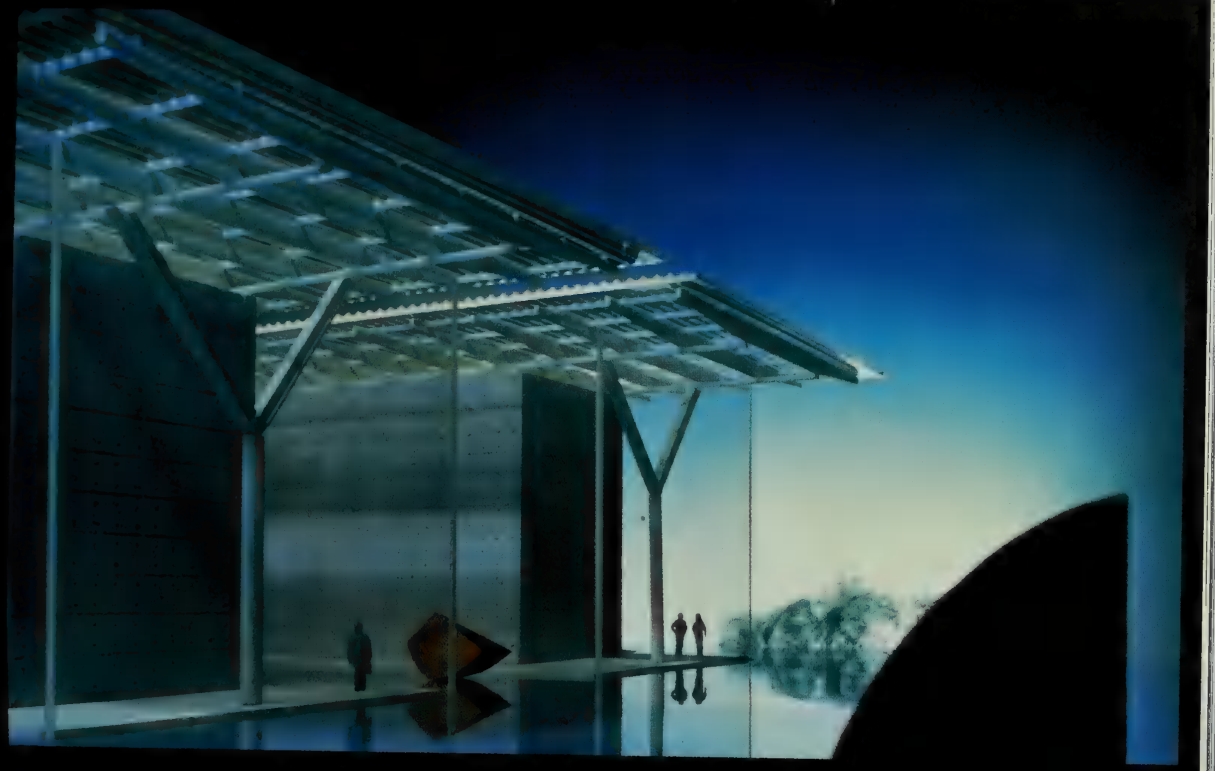
Robert Venturi, speaking for the disaffected wing of the profession, compares architectural competitions to doctors prescribing for patients they haven't examined. "Good buildings emerge only after extensive dialogue with a client, and that is difficult to have in most competitions these days. Many are determined by advisors who haven't made it as architects and try to make themselves look good by making your life miserable. You're expected to arrive at an answer before the client has even formulated the question."

An informal AIA survey several years ago showed architects evenly split on the value of competitions. Yet the division had nothing to do with the age of the architects, the size of the firm, or the kind of work they did.

Such ambivalence is rare in Europe, where competitions are both a way of life and an instrument of public policy. Libraries, schools, daycare centers, bus stations, virtually every public project is fodder for competitions. Many are restricted by region, town, even neighborhood to give local talent a chance. Alvar Aalto's first public commission, a bus shelter in Helsinki, was won by competition. The enduring legacy of the 1992

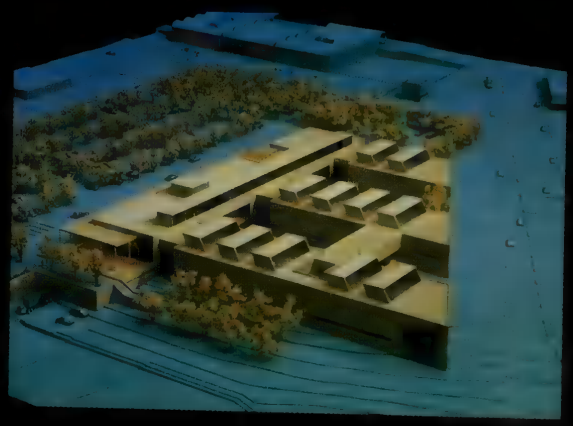
Contributing Editor David Dillon is the architecture critic for the Dallas Morning News *and has written a book on the FDR Memorial, which will be published by Spacemaker Press in 1998. He is also the author of the new plan of Washington, D.C.*

Winning the competition for the Modern Art Museum of Fort Worth, Tadao Ando earned his first freestanding commission in the U.S. Model shots show what Ando designed for the museum (right and below left). Among the other entries were schemes by Richard Gluckman (below right) and Carlos Jimenez (bottom right).







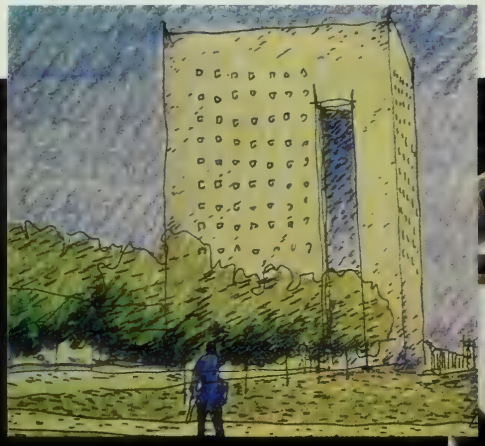


Barcelona Olympics lies not only in the monuments by imported designers but also the dozens of plazas, soccer fields, and marinas created by home-town architects. The games enfranchised an entire generation of local practitioners.

But if local competitions provide major opportunities for young architects, the splashy international ones can be swamps of political intrigue in which jury decisions are capriciously overturned by outside forces.

An international fiasco in Berlin

Consider the 1988 competition for an addition to the American Memorial Library in Berlin, which went three rounds, produced two winners, plenty of bad blood, and no building. And it was a *goodwill* competition, sponsored by the German government to repay Americans for building the original library in 1950.









The runners-up in the Fort Worth competition included Ricardo Legorreta (left and above left), David Schwarz (above), and Arata Isozaki (right).

The first jury named three co-winners: Steven Holl, Lars Lerup, and Karen Van Lengen, all of whom were asked to revise their schemes for a second round. Holl emerged as the unanimous choice, until Berlin's minister of buildings, Wolfgang Nagel, voided the results on the grounds that Holl's design was unbuildable and unresponsive to community needs.

Nagel then called for a third round, with a planning and urban design component, which was won by Van Lengen. "It was all corrupt," says Holl. "I felt like I was being robbed. If an international board had overseen it, the competition would have been rejected." Holl considered suing, and also tried unsuccessfully to persuade the other finalists to boycott the third round. Van Lengen, now chair of the architecture department at Parsons School of Design, worked three years on the project, only to be overtaken by events.

Communism collapses, and so does a competition

"The whole situation changed when the wall came down," Van Lengen says. "The original library was a symbol of Berlin's resistance to Communism. Suddenly, unification with the East became a priority. We couldn't move fast enough to keep up."

Though still bitter about the outcome, Holl remains a supporter of competitions. "I wouldn't negate the whole process just because of a few corrupt politicians." Lerup, who says Holl did his share of politicking too, isn't quite so sanguine. "My sense is that the big competitions have always been manipulated, more or less openly. "I'll never do another one unless the client has the check written before I show up."

America sponsors fewer competitions, and most tend to be for glamour projects—museums, city halls, national memorials—that can make careers or at least produce years of free publicity for competitors through books, lectures, exhibitions, and interviews.

Michael McKinnell was only 26 when he and his partner Gerhard Kallmann won the 1962 Boston City Hall competition. It made them overnight stars and shaped the course of their practice. "Everything was determined by that one event," says McKinnell, now 61. "We could neither ignore it nor do without it. It gave our practice a tremendous jump start, yet when you start your career with something so large and prominent you're immediately typecast as doing a particular scale and style of building. It took a painfully long time before we could get a small project in the office. I've only just completed my first house."



Michael Morris and Yoshiko Sato, New York City

Michael Morris and Yoshiko Sato are following the path of hundreds of aspiring young architects in New York, Los Angeles, and other design-saturated cities. They teach—at Parsons School of Design—do exhibitions and installations, and enter competitions. Idea competitions, portfolio competitions, competitions sponsored by institutes and foundations. Both have won Paris Prizes from the National Institute for Architectural Education, and have done well enough in other competitions to garner a bit of publicity, more invitations, but so far no work.

"Competitions have helped us focus our energy and develop a philosophical direction in our architecture," explains Sato. "They're also tools for getting grants, which produce research, which leads to teaching jobs. It's all interconnected."

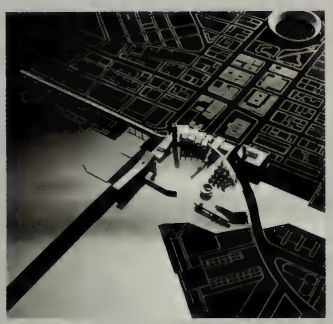
Morris, 35, and Sato, 36, met as students at Cooper Union and became partners in 1991. They share an interest in light as both a physical and theoretical resource and have made it the subject of several projects and exhibitions. They also admit to being jealous of their European counterparts, who generally have an easier time getting major commissions. Morris recently renewed his Irish/EU passport in hopes of opening doors abroad.

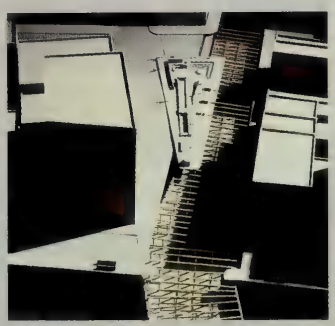
"In New York, you have so much less opportunity to build something freestanding," says Sato, "whereas in Europe a young architect with some hard work and good fortune has a chance of designing something significant before 35."

Morris and Sato have recently completed an addition to a Manhattan penthouse, their first "above-ground" project, and are collaborating with artist Jodi Pinto on a footbridge for the Central Artery project in Boston and another in San Antonio. This recent spurt of work has allowed them to strike what they consider a healthier balance between competition and practice.

"The competition format reduces the scope of what you can make visible," says Morris. "So many issues of construction can't be described in broad graphic strokes. So now we use competitions to test the ideas we come up with in the studio at a larger scale. They've become a supplement to our practice instead of the focus." *D.D.*

Morris and Sato's competition entries for the Yokohama waterfront (left) and Petrosino Park (right).







Antoine Predock, Albuquerque, New Mexico

In the 1980s, Antoine Predock was a respected regional architect, pushing 50, with a number of impressive houses and institutional buildings to his credit, but nothing big and virtually nothing outside New Mexico. So in 1985 he and his team, all six of them, decided to bet the hacienda by entering the competition for the Nelson Art Center at Arizona State University. It was larger than anything the firm had done, with a complex program, and comparatively far from home.

"It was all or nothing," Predock recalls. "We didn't worry about the hours or the costs, although we realized that if we lost we'd probably be designing gas stations." But they won, beating out Edward Larrabee Barnes, Arthur Erickson, and several other international firms. More competition wins followed: The American Heritage Center in Laramie, Wyoming, the Las Vegas Library and Children's Museum, the Laboratory and Administration Building at CalTech, Pomona.

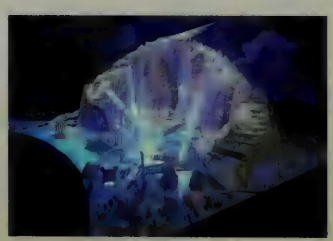
"Mr. Adobe" suddenly became "Mr. Competition," a fixture on the national lecture circuit, profiled in *Vanity Fair*, courted by prestigious clients, including Disney. The Albuquerque office swelled to 40, with a branch in Los Angeles.

Predock has mixed feelings about his manic "L.A. phase," but not about the decision to roll the dice in competitions. "Competitions bring out unexpected qualities in the work," he says. "It's a totally different situation from sitting across the table from a client. The anonymity of the process introduces elements of danger and risk-taking that help make a critical practice possible."

Predock continues to enter competitions, wins his share, but has become more selective. No open competitions. No competitions without stipends, or that lack what he terms "investigative potential." But he still relishes the electricity generated by competitions and its ripple effect on his other work. The faceted glass skin of his entry in the Atlantis Hotel and Casino competition (which was never built) reappears in the entrance and lobby of the Spencer Performing Arts Center in Ruidoso, New Mexico, which opened October 4. The dramatic wedge and intersecting volumes of the Las Vegas Library show up in his new Mesa Public Library in Los Alamos, New Mexico. And he expects to find a place for the metal exoskeleton of his recent submission for the National Archive of Denmark.

"The thrill isn't winning," says Predock. "What matters is what lives on in the drawings and models and the spirit of the office. We made a tremendous event happen among ourselves, out here in Albuquerque. It sounds too Mary Poppins, I know, but that's how we feel." *D.D.*





Predock's competition entries for the National Archive of Denmark (top) and the Atlantis Hotel and Casino in Las Vegas (bottom).

American architectural history is filled with similar stories. Eero Saarinen got out from behind his famous father's shadow by winning the Centennial Gateway Arch competition in St. Louis. Albuquerque architect Antoine Predock escaped his reputation as "Mr. Adobe" by winning a series of major competitions in the mid-1980s [see sidebar, page 65]. Maya Lin might be just a struggling artist were it not for winning the Vietnam Veterans Memorial competition.

The payoff—even for losers

Yet in prestigious international competitions, winning isn't everything. Eliel Saarinen got more mileage out of a second-place finish in the Chicago Tribune Tower competition than Raymond Hood did by finishing first. Houston architect Carlos Jimenez, a finalist in the Modern Art Museum of Fort Worth competition, has seen his visibility shoot up dramatically. "It brought my work to a national level almost overnight," he says. "I'm getting calls I never would have got before. The competition was a real turning point for me."

Competitions come in various guises, from idea competitions ("What to do about Times Square?") to interview competitions, portfolio competitions, and design-build competitions, a favorite of city managers. But the fundamental division is still between open competitions—such as the Oklahoma City Memorial and the Vietnam Veterans Memorial—and invited competitions, in which a handful of architects are preselected on the basis of previous work.

The first usually have low fees and limited requirements: one or two boards, perhaps, and a few paragraphs of text. But they attract hundreds of entries, which reduces the odds of winning. Invited competitions offer better odds and more focus, and usually include a stipend. But the stipend never covers the costs, which may include perspectives, a dozen boards, a model, a report, and a public presentation.

The Modern Art Museum of Fort Worth's competition for its new building, across the street from Louis Kahn's Kimbell Art Museum, offers valuable insights—mostly reassuring—into the process.

In the beginning the director and chief curator put together a master list of approximately 25 plausible candidates, which they presented in detail to a committee of trustees and friends of the museum. The committee cut the list to six, considered a manageable number, and issued invitations for a one-stage competition consisting of six boards, a dozen drawings, and a formal presentation, for which the architects were each paid $25,000. All the architects visited the site. One came eight times.

Telling the public what the project is about

The staff and committee, in turn, visited the major buildings of each of the finalists. There was no professional advisor or outside jury. Before announcing the winner, the museum exhibited the designs for a month to raise public understanding and expectations about the project. A book and a video will follow.



Left to right: Kallmann McKinnell's Boston City Hall, Eero Saarinen's Gateway Arch, Maya Lin's Vietnam Memorial.

"The competition produced an intellectual and promotional drama that told people what the project was about," said chief curator Michael Auping. "It educated the staff and the committee to be better clients, and it pushed the museum center stage in the center of the country for modern art. What artist wouldn't want to show in an Ando building?"

The clarity of the Fort Worth competition contrasts sharply with the muddle of MoMA's, which already has gone through two rounds, 10 architects, and a baffling exhibition. The competition's stated intentions were commendable—to focus on concepts rather than design, and to highlight the work of a new generation of modernists. Instead, the 10

schemes, each packaged to fit into a green shirt box, proved to be timid, repetitious, and so uniformly inscrutable that not even the cognoscenti could decode them. Leading museum architects in New York and elsewhere felt stiffed. In short, what should have been a stimulating public discussion about the future of an enormously important building turned into an esoteric insider affair that has left the public out in the cold. And there's at least one more round to come.

Competing isn't cheap

Yet even an impeccably organized competition represents an enormous gamble for an architect. The estimated minimum cost of participating in a major invited competition is $40,000, of which the stipend may cover a quarter to a third. Most architects exceed the minimum by a factor of four. Richard Gluckman calculates that he spent more than $150,000 on the Fort Worth competition, much of it on sophisticated models. Another competitor went into debt.

Paul Spreiregen's solution to this problem is "to pay architects in a competition what they would be paid if they were commissioned. The first stage is just to get a viable idea, and should be a back-of-the envelope kind of thing. But at the next stage, which is really preliminary design, architects should be paid for what they do." The finalists in the American Memorial Library competition were paid approximately $60,000 each. But most competition sponsors are reluctant to pay even that much. Young, small firms, without access to a large staff, find themselves at a dramatic disadvantage against big firms, which can throw money at a proposal. Yet even big firms that come up empty in two or three major competitions in a few years can be looking at Chapter 11.

Despite the meager compensation and the onerous conditions, few competitions are cancelled for lack of applications. The architects who complain the loudest are often the first to sign up. This could be evidence of either professional masochism or the persistence of a lottery mentality among architects that says sooner or later your number will come up.

For young architects, particularly in major cities such as New York, Boston, and Los Angeles, a competition is still a good way of getting recognition. Maybe you win; maybe you make a creditable showing. Either way, you may find yourself on the A list for future invited competitions. From that may come a job or two, eventually perhaps a career. [See sidebar on Morris and Sato, page 65.]

The rules of engagement

For seasoned practitioners, the rules of engagement are more complex, and the reasons for entering more idiosyncratic. Yet at some point or other, every architect who considers entering a competition probably asks some version of the following questions:

Is it a worthwhile project? Meaning, is it a project that will stretch my skills and expand my mind, or is it just another job? One reason to enter a competition is to experiment with a different type of building or, like Gluckman, to design a familiar one at an entirely new scale. "We didn't win in Fort Worth," he says, "but I'm enormously grateful for the chance to do a whole museum from scratch and place it before the public. That's a tremendous gift for a small firm like ours."

Is it a real project? In other words, is there a chance in hell of its getting built? Many competitions are merely publicity stunts for the sponsor, a way of acquiring a reputation for sophistication and seriousness without expending much effort. Of the numerous competitions that Venturi, Scott Brown and Associates has won, only one, the addition to London's National Gallery, has been built. "Ours is a profession and an art in which one becomes accustomed to disappointment," Robert Venturi has written, "but you always die a little bit when the product of your labor is rejected and your dream remains unbuilt."

Who's competing? Architects are known in part by the company they keep; the better the company, the more glory there is to bask in. In good competitions, an architect makes a mark just by being invited. Sometimes, unfortunately, the list *is* the competition. According to Stanley Collyer, editor of *Competitions* magazine in Louisville, Kentucky, "Many institutions hold invited competitions because they have to sell an idea to trustees or fund raisers. A short list of well-known architects is a way of saying, 'We count.' It's the architects, not the design, that's really important."

FOR SOME ARCHITECTS COMPETITIONS ARE NOT ABOUT WINNING AT ALL. THEY ARE OPPORTUNITIES TO EXPLORE A NEW IDEA OR TO TAKE A CHALLENGING POSITION.

Who's on the jury? Trying to second-guess a jury can be self-defeating, but knowing the predispositions of jurors is only prudent. You may not win, but you still want to be heard. "The important thing is to lose with dignity," says Carlos Jimenez. "The project has its own mission and its own integrity. If you play to the jury, you've already lost. You have to make a move, as in chess, and what comes out is your stewardship."

Can I afford it? The time. The money. The despondency that inevitably goes with losing.

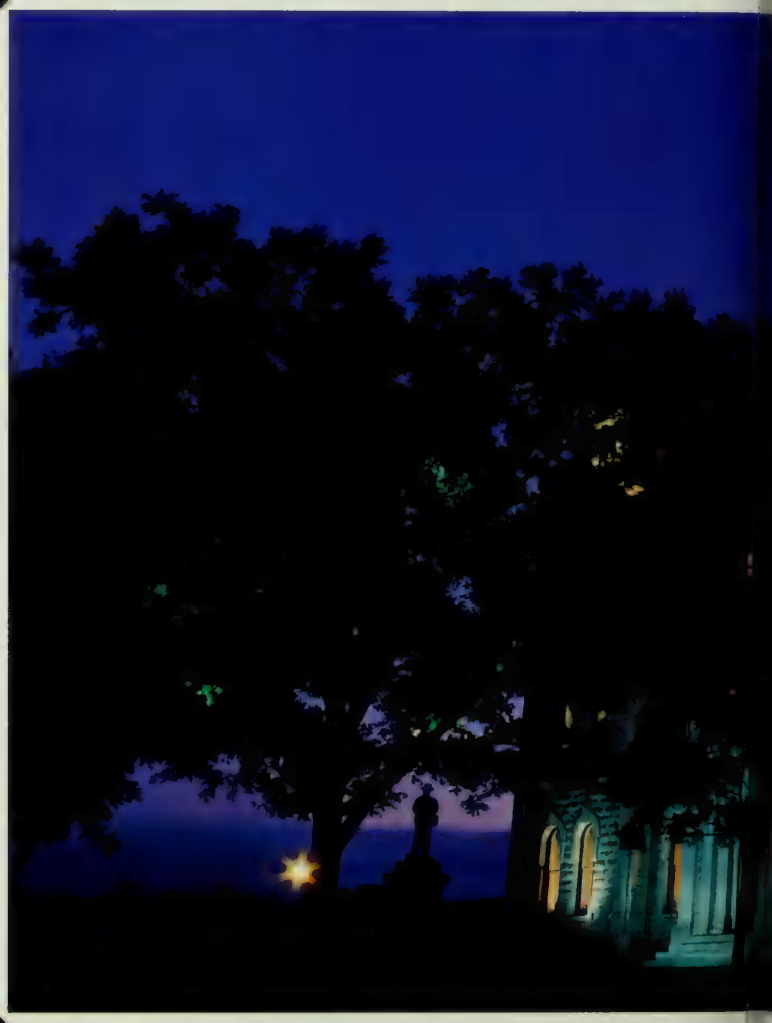
What do I get out of it? Attention, money, a place on the right lists, the requisite 15 minutes of fame: these are the obvious reasons for entering a competition. Predock talks about competitions creating a "spiritual savings account" that can be drawn on later for other purposes. "A competition is like putting a slow charge on a battery," he says. "The collective energy that builds up in making a building lives on and pops up in other things, maybe in materials, a form, or maybe in an attitude. That's very healthy."

Am I out to win the competition, or solve the problem? Perhaps the toughest question of all, and one that divides architects down the middle. Winning often means producing stunning poetic images that capture the imaginations of the client, even as they avoid the practical problems. Tadao Ando won the Fort Worth competition on the strength of his rhapsodic images and his intuitive understanding of the site, rather than his gallery plan.

Beyond winning and losing

But for some architects competitions are not about winning at all. They are opportunities to explore a new idea or to take a challenging theoretical—or rhetorical—position. "We've never entered a competition with the idea of winning," says Michael McKinnell. "That takes all the fun out of it. You're no longer your own master, which is the great joy of a competition. You have nobody to answer to but yourself. That's exceedingly rare in our profession." ■

WHEN IT CAME TO RENOVATING THIS HISTORIC COURTHOUSE, EVEN THE



In 1964, The Parker County Courthouse in Weatherford, Texas was designated a Texas Historic Landmark. And thus began the slow, methodical process of restoring it. First to receive attention was the structure's limestone stonework. Later, the roof was replaced. Then came the windows, which proved to be one of the most challenging aspects of the project.

The Historical Survey Committee mandates that if nothing remains of a historic building's original windows, the new ones must be faithful reproductions, right down to the last detai Since the courthouse's original wood windows had been replaced by aluminum ones some years back, that meant that all 105 of the new windows had to be virtually identical to those made and installed over a century ago.

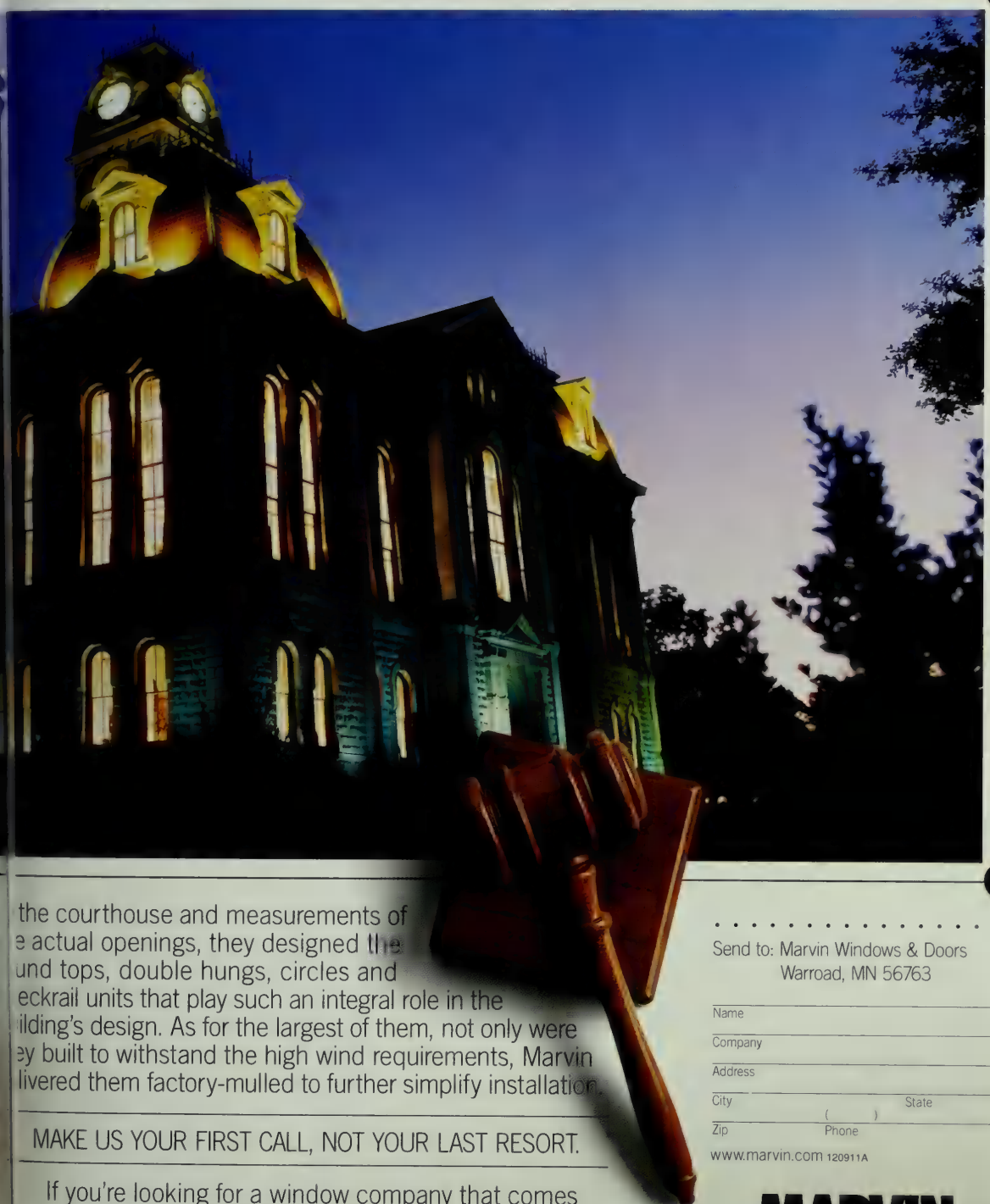


Bids were sought, but only two manufacturers felt qualified to respond. One of them, Marvin Windows & Doors, had actually been recommended by a company that was asked to bid but declined.

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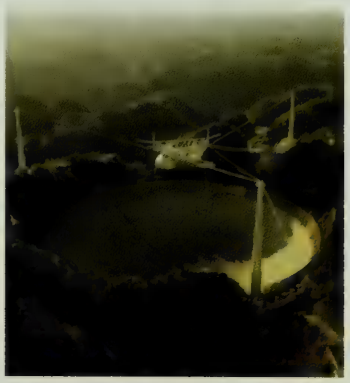
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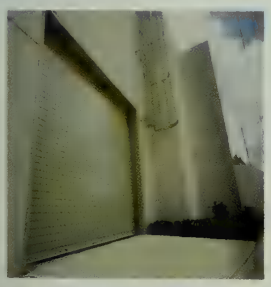
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CIRCLE 35 ON INQUIRY CARD

After almost fifteen years of design and construction, **THE GETTY CENTER** is ready for the public. How has **RICHARD MEIER** succeeded with the project many call the "commission of the century"?





In a view south (above), the Getty Center is perched atop a promontory on the edge of the Santa Monica Mountains.

The east side of the complex (below) stretches from helicopter pad (for fire fighting) to museum gardens (opposite).

These are the facts, or at least some of them: 14 years and 3 months from site acquisition to public dedication; 1 million sq ft of construction (505,000 sq ft of program areas and 440,000 sq ft of food service, storage, and equipment); approximately $1 billion spent (more than $115 million for site preparation, some $600 million for direct construction, over $30 million for fixtures and equipment, and nearly $200 million for permits, engineering, testing, and architectural fees); 295,000 pieces of Italian travertine, each weighing 280 pounds; 40,000 painted aluminum panels; 25 million pounds of rebar; 340 miles of conduit; 165,000 sq ft of exterior glass; 8.1 million cubic ft of concrete; 4.4 million linear ft of steel stud; 151 miles of plumbing and sprinkler piping; 8,000 new trees; a construction crew of 1,200 at its peak. Much has been said, speculated, predicted, and promised about the Getty Center over the years. Now, as it finally nears its public unveiling in December, it's worth reviewing the numbers, not because they tell the whole story, but because, despite their illusion of precision, they don't.

The real story begins with the elusive J. Paul Getty, once known as "the richest man in the world," who changed his will 21 times before dying in self-imposed tax exile in England on June 6, 1976. His final testament, dated March 11, 1976, left the bulk of his personal estate, mostly in the form of Getty Oil Company stock, to the J. Paul Getty Museum and a trust established in his name. By the time his estate was settled six years later, the four million shares of Getty Oil had increased in value from $760 million to $1.2 billion. In the early 1980s, the newly appointed head of the J. Paul Getty Trust, Harold M. Williams, former chairman of the U.S. Securities and Exchange Commission, set about inventing a mission for the organization. Recalls Williams: "The estate was, in effect, a billion dollars with a broad mandate and a lot of flexibility. Particularly for the visual arts, it's a lot of money. It was possible for the Getty to make a difference."

Williams tried to determine *how* to make the difference. After extensive discussions with professionals in the arts and humanities, the Trust identified three general areas—scholarship, conservation, and education—that had "pressing needs not adequately addressed by other public or private sources," Williams says. The Trust formed a group of programs that individually and collectively responded to those needs. After some name changing and development, over a period of years the Trust produced six Getty entities: the Research Institute for the History of Art and the Humanities, the Conservation Institute, the Education Institute for the Arts, the Information Institute, the Leadership Institute for Museum Management, and the Grant Program, each with its own director.

As these institutes and programs began to flourish, a key unanswered question was where they should reside for the long term. The J. Paul Getty Museum in Malibu, modeled on the Villa dei Papiri in Herculaneum, Italy, already had restrictive access and limited potential for large-scale development, not to mention a lush estate ambience that would have been destroyed by the new Getty's program requirements. Moving in or adding on was not an option. The new directors and their staff members were mostly scattered in office buildings around Los Angeles, so Williams started looking for a parcel of land large enough to bring all of the Getty pieces together in one campuslike environment. By the fall of 1983, he had found what he was looking for: 110 acres on a promontory on the southernmost edge of the Santa Monica Mountains, overlooking the Pacific Ocean to the west and downtown Los Angeles to the east, with convenient access to the San Diego Freeway. (An adjoining 600 acres were purchased by the Trust as a natural preserve.)

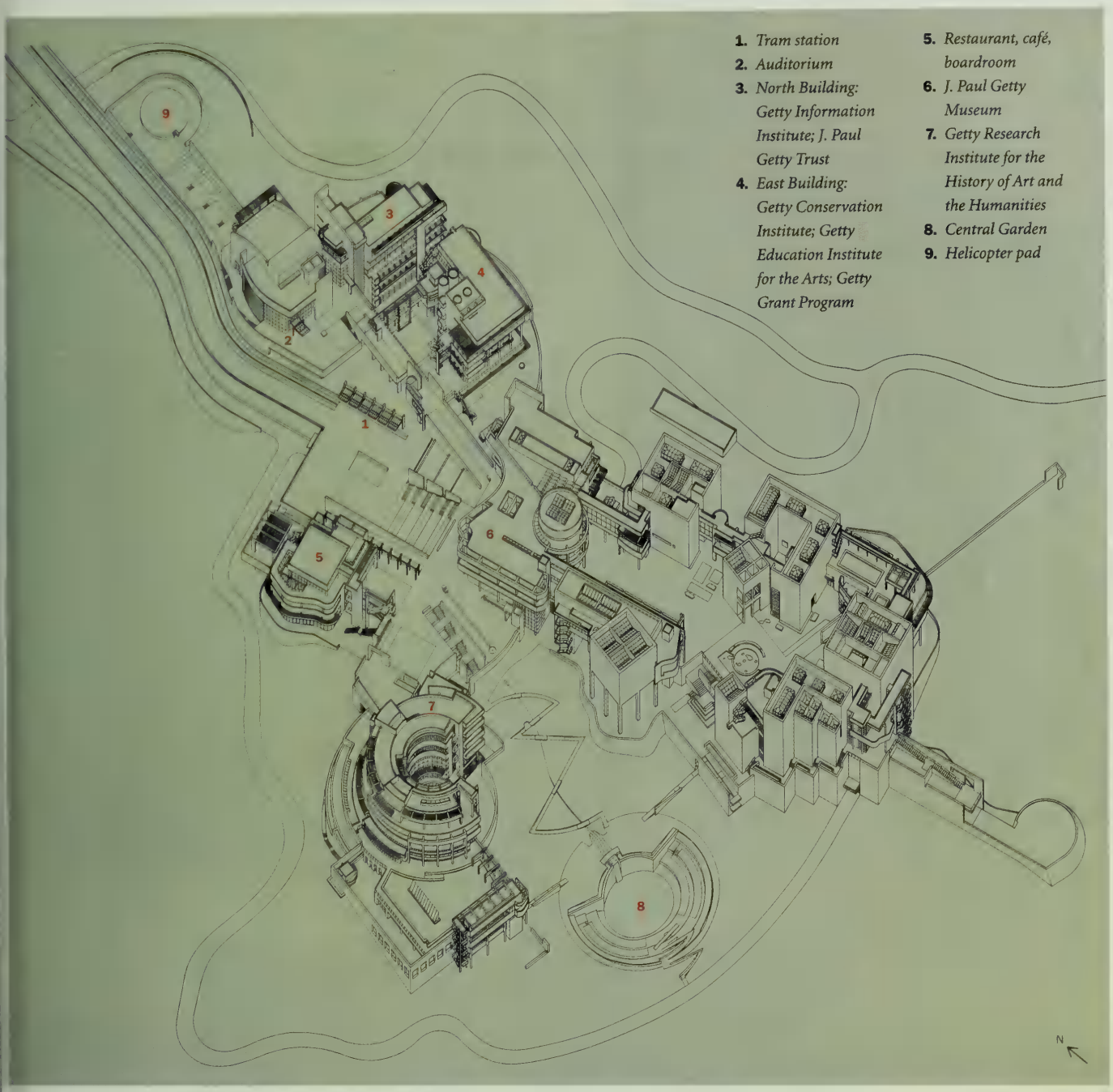
After a year-long architect selection process, Williams and his trustees hired New York City–based Richard Meier & Partners in late 1984 to design what many at the time grandly called "the commission of the century." But a lot had to happen before design could even begin. Planning for programs still in formation proved to be one of the key challenges faced by Stephen D. Rountree, then the building program director. "A lot about the missions of the various programs and their physical requirements was unclear. It took a leap of faith," says Rountree of the 16-month programming phase of the project. Meier struggled with the exact siting of the project: what spot on the 24 buildable acres would be suitable for the Getty Center? His earliest sketches of the project, schematic plans of September 1986, place major buildings along two ridges that intersect at a 22.5 degree angle, a major theme of the final design. During design Williams, Rountree, and Meier faced a host of seemingly irreconcilable forces. The Getty's various programs, in only a few years time, had established separate identities and were diverse in their spatial needs. Meier had to figure out how to accommodate the different programs in one place: how to create both diversity and unity, distinction and inclusion, and not least of all how to reconcile the views of all the directors with those of Williams and the Trust, much less his own.

Seven years after Meier was selected as architect, his final design of the Getty Center was unveiled. More than six years of construction later, the project awaits its public. While this new city on a hill clearly represents the authority of a singular architectural vocabulary with its overlapping grids and dominant and subordinate axes, a strictly calibrated system of proportions, and a controlled palette of materials and colors, the architect's commanding presence—the project's very Meierlike appearance—belies the aches of the communal process it took to get there. In addition to the demands of multiple clients, neighborhood groups played an usually intensive role in the design: rejecting cladding choices as too reflective, prescribing limited access to the site, imposing a height limitation of 65 ft for the museum and 45 ft for the remainder of the project, monitoring the replanting of the hillside. Their "reasonable" needs had to be satisfied before the city would grant the Trust a Conditional Use Permit. What's more, Meier's vision did not always coincide with that of the end users. Museum staff, for example, did not want stark white galleries, but favored colored and textured walls to complement the paintings.

THIS IS A STORY OF AN ARCHITECT, A CLIENT, AND A CONTRACTOR WHO DEMANDED MORE OF EACH OTHER THAN THEY EVER IMAGINED POSSIBLE.

The design conflicts were many and vociferously fought over for years. While some battles did not go Meier's way—"I still think the paintings are six inches too high," the architect said on a recent gallery tour—his legendary persistence remained intact. Jokes Rountree, "Over all these years, he came out here every month, even though at times we wished he'd have stayed in New York." Echoes Williams: "He had a real attention to detail all the way through. There were times in this process when I would have enjoyed a little less attention to detail." But the eye for things small as well as large and the indefatigable persistence came hand in hand. For all the stone, metal, dollars, and time, this story is of an architect, a client, and a contractor who demanded more of each other than they ever imagined possible. Facts and figures aside, making the Getty Center has been a human drama. *Karen D. Stein*

The interviews and chronology on pages 78–81 were compiled by Karen Stein, who also contributed additional reporting throughout.



Project: *The Getty Center Los Angeles, California*
Client: *The J. Paul Getty Trust*
Architect: *Richard Meier & Partners—Richard Meier, FAIA, Michael Palladino, AIA, Donald E. Barker, AIA, James Crawford, partners-in-charge; John H. Baker, John Eisler, AIA, Tom Graul, Michael Gruber, Dennis Hickok, Richard Kent Irving, Christine Kilian, James Matson, AIA, James Mawson, AIA, Milena Murdoch, A. Vic Schnider, Timothy Shea, Richard Stoner, Aram Tatikian, Lazlo Vito, J. F. Warren, AIA, project architects*
Landscape Architects: *Olin Partnership/Fong & Associates; Emmet L. Wemple & Associates; The Office of Dan Kiley*
Engineers: *Robert Englekirk Consulting Structural (structural); Altieri Sebor Wieber, Hayakawa Associates (mechanical/electrical); B&E Engineers, RBA Partners, Inc. (civil)*
Consultants: *Paul S. Veneklasen & Associates (acoustical); Paoletti Associates, Inc. (audio/visual); Kaufman/Dahl, Inc. (color); Hanscomb Associates (cost estimating); The Office of Thierry Despont, Ltd. (decorative arts galleries/gallery design consultant); Hesselberg, Keesee & Associates (elevators); CDC, Inc. (exterior enclosure); Rolf Jensen & Associates, Inc. (fire protection); Cini-Little International (food service); Woodward-Clyde Consultants, Pacific Soils Engineering, Inc. (geotechnical); Earl Walls Associates (laboratory); Fisher Marantz Renfro Stone, Inc. (lighting); Karsten/Hutman Margolf (project management); Poulsen Construction Management, Inc. (scheduling); American Nova Co. (specifications); CMS Collaborative (water features)*
Key Subcontractors: *Harmon, Ltd. (exterior enclosure); Air Conditioning Company, Inc. (HVAC)*
General Contractor: *Dinwiddie Construction Company*



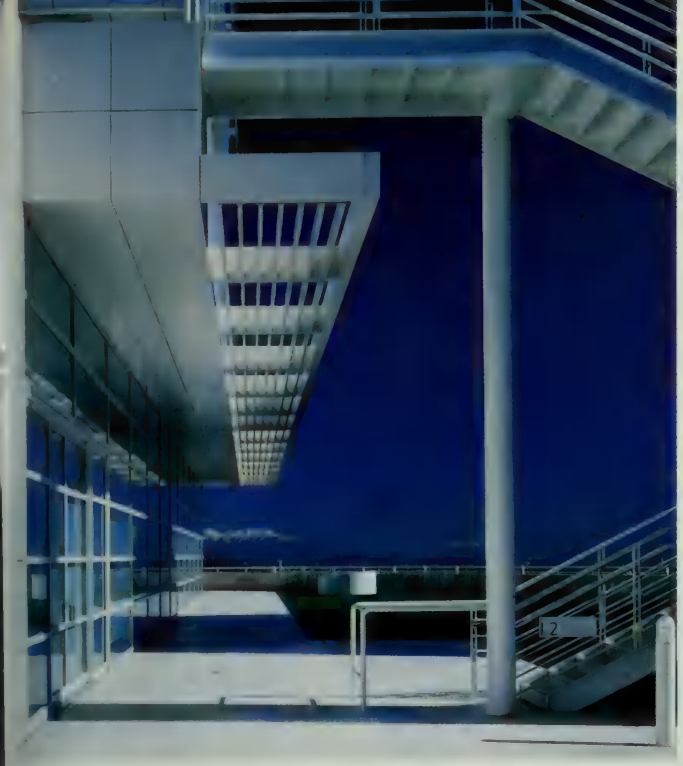
Above: From the East Building, looking south toward the museum. More than 8,000 new trees, including 3,000 California oaks, were planted on the site, so in the next few years foliage will become increasingly dense.

Below: A grassy wedge of lawn between the East Building (left) and the museum seems to cantilever over the San Diego Freeway.





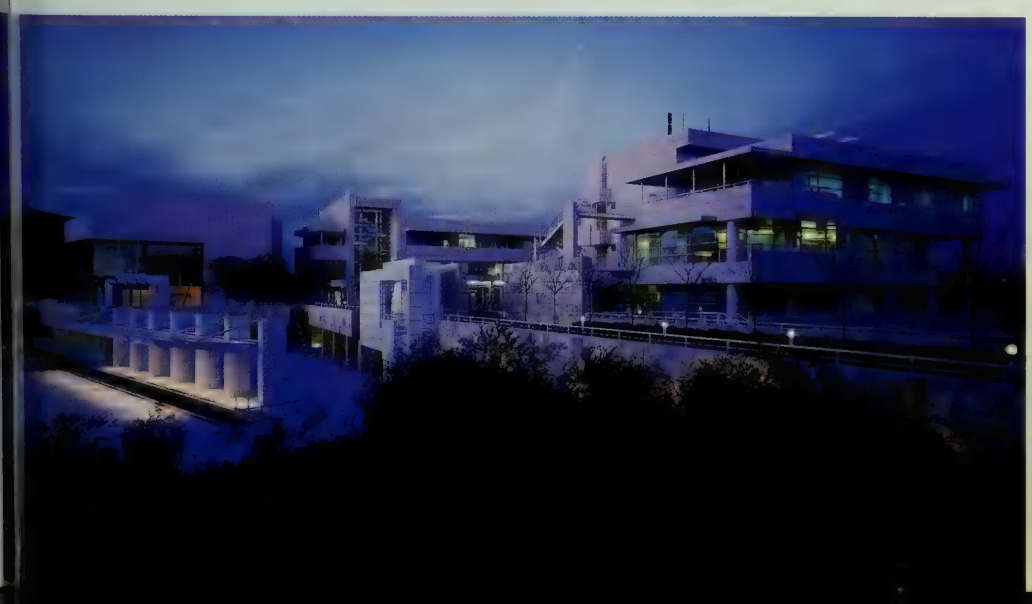
Left: View looking north, with the auditorium (left), the North Building (right), and the East Building (right foreground). The various buildings are connected by walkways and exterior stairs.



Left: On a clear day, views from the Getty Center reach as far as the snow-capped mountains to the east. Brise-soleils provide much-needed sun-shading to the East Building.

Below: A lavender-colored painted trellis along the east side of the restaurant/café/boardroom building will soon be covered with wisteria. Second-floor walkways overlook the Pacific Ocean.





Left: At night, the Getty Center lights up. The tram drops off visitors beneath a series of canopies in the central plaza, which is adjacent to the grand staircase to the museum.

OF THE THOUSANDS WHO HELPED MAKE THE GETTY CENTER, COMMENTS FROM KEY PLAYERS



Harold M. Williams
President and Chief Executive Officer, J. Paul Getty Trust

J. Paul Getty was wise enough not to try to rule from the grave. His will talks about a museum, a library, and the diffusion of artistic and general knowledge. It also stipulates that the museum "shall bear my name," not an unreasonable request, and that the trustees shall serve without compensation. That's it: a museum and an operating foundation. Within those parameters, yes, there could have been a lot of different things. As a private foundation we could take risks and make long-term commitments. The question [in formulating the Trust] was: where's the leverage? where are the interstices?

We learned from the field: traveling in Europe and America, interviewing scholars, conservators, anyone in the visual arts. We kept asking questions to find commonalities in the issues expressed. Then we came back to the trustees and said, "Here are the areas where the Getty stands a good chance of making a substantial difference." Since then, a number of programs have developed. From an endowment of some $1 billion we now have an endowment of over $4 billion, and as you can see, we spent a few dollars along the way.

Many things led us to the selection of Richard Meier. This is a man who has a passion for museums and books. He was the most articulate of the many architects we interviewed in conceptually and materially understanding the site, appreciating the quality of light. And he made a larger commitment of self to this project than any of the other architects were prepared to do.

Stephen D. Rountree
Vice President, J. Paul Getty Trust

I worried about representing the project to the community. The main topics were size, traffic, noise, and visual and acoustic privacy. The Brentwood homeowners [who live down the hill] had two architects review all the drawings. The Bel Air homeowners [who live across the freeway] had a broader view. They were concerned about street parking, the new freeway exit, signage. I think the process was healthy. The group heads were able to translate to the neighbors what was happening. They got us to redesign the location of food-service exhaust vents, night lighting, and so on. When J. Paul Getty built the Malibu villa, he was indifferent to the neighbors. It was perceived as a secret deal. Harold [Williams] said from the start, "We're going to be here for 100 years. We need to be part of the community."



CHRONOLOGY

1953 The J. Paul Getty Museum is established as a California charitable trust.

1974 The Getty Villa opens in Malibu.



1976 J. Paul Getty dies, leaving the bulk of his personal estate in trust to the J. Paul Getty Museum.

1981 The Trust hires Harold M. Williams as its first president and chief executive officer.

1982 The J. Paul Getty estate is settled; the Trust receives $1.2 billion.

1983

SEPTEMBER The purchase of a 110-acre site in Brentwood is announced. Another 600 acres are purchased as a natural preserve.

OCTOBER Thirty-three architectural firms are invited to submit qualifications to design the Getty Center.

NOVEMBER Seven firms are selected as semifinalists: Henry Cobb of I. M. Pei & Partners; Fumihiko Maki & Associates; Richard Meier & Partners; Mitchell/Giurgola; James Stirling, Michael Wilford and Associates; Venturi, Rauch and Scott Brown.



ard Meier *(left)*
Michael Palladino
cipals, Richard Meier
artners

The Getty Center is
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MP: Many people say that the Conditional Use Permit and its 107 exceptions tied our hands in terms of design. But where would we have been without it? Where would one have drawn the first line? In the early discussions about the project, we began to develop the duality of the site. The museum, being the most public of the buildings, is positioned as the most visible to the city. Other buildings are more contemplative in function and face the mountains or ocean.

John Walsh *(below left)*
Director, J. Paul Getty Museum
Deborah Gribbon *(middle) Associate Director*
Barbara Whitney *(right) Associate Director*

JW: A well-developed idea for the museum existed before Meier was hired. The main principle is embarrassingly simple: galleries that make works of art look wonderful. The idea was about the quality of light and the proportions of the spaces. Also, people learn a lot more in a place they enjoy, so the spaces can't all be the same kind and the informational and educational aspect of the program can be built in and not added on. After observing the Malibu museum, it was clear that it's not just about intense gallery experiences, it's also about relaxing outdoors. We thought we'd build a quirky museum. This is a loose-limbed building with all kinds of seemingly private corners and captured spaces.

DG: The driving force in the design of the museum was striking a balance between giving visitors options about the route they might take through the galleries, encouraging an exploration, and creating an easily understood floor plan. John [Walsh] has always had a strong voice about the essential elements of a museum. There was also an understanding on his part that a museum is a very complex building in that it has galleries and other public spaces that have to be very specifically purpose-filled. But then it has very narrow tolerances in terms of HVAC, etc. Having established the basic outlines, John was willing to let the users speak for themselves with equally strong voices about their needs.

BW: Observers of the gallery-design process such as the lighting consultants say it was the most truly collaborative effort across a wide range of people they had ever seen. The director and chief curator were actually having a real dialogue with the people who work with the objects, and these opinions were communicated to Richard Meier and Thierry Despont.



1984

1983–84 The Getty Trust creates five institutes in addition to the museum—the Getty Research Institute, the Getty Conservation Institute, the Getty Information Institute, the Getty Education Institute, and the Getty Leadership Institute—and the Getty Grant Program.

APRIL Three finalists for design of the center are selected: Fumihiko Maki & Associates; Richard Meier & Partners; James Stirling, Michael Wilford and Associates.

OCTOBER Richard Meier & Partners is chosen as architect of the Getty Center.

NOVEMBER First meeting of the Getty planning committee, which includes Harold Williams, Stephen D. Rountree (newly named building program director), and others.

1985

Getty staff, including Museum Director John Walsh, and architects travel to some 50 sites in Europe and North America to study museums, research institutes, and gardens. Rountree works with internal groups to draft the program.

1986

MARCH The architectural program for the Getty Center is completed.

SEPTEMBER Richard Meier & Partners opens a Los Angeles office, headed by Michael Palladino.



Elaine Gerdeau
Manager, Bel Air Association
We were most influential on the subject of traffic, but the color of the building was also particularly important to us. We understood Meier's museum in Frankfurt has a high-tech look with white panels. I haven't seen it, but I heard that it's shiny and really stands out and that he had something similar in mind for here. We were opposed to that because we wanted something that fit in the Santa Monica Mountains. Now I think it's terrific, though some of the neighbors are horrified.

Robert Barnett
Director, Brentwood Homeowners Association
The city of Los Angeles said it would grant the Conditional Use Permit only upon the approval of the homeowners associations. The issue we labored on most intently was color. We were concerned about reflection off of a white building. Meier would bring in a metal panel and say, "It's beige," and we'd say, "It's white." After a lot of negotiation, we finally agreed. We are pleasantly surprised at the way it's turned out and that the Getty considered our needs and concerns.

Greg Cosko *(below right)*
President and CEO, Dinwiddie Construction Company
Ron Bayek
General Superintendent
GC: Dinwiddie has a relationship with the Getty that goes back to 1959, when we did an office building for Getty Oil. Later we built the Malibu museum. What we had to offer the Trust was a substantial amount of preconstruction and logistical planning. From the beginning, our supervision and management teams were able to assess and provide information to Meier's team and the Trust regarding feasibility and cost and the practicality and impact of various systems. There were a lot of unanticipated geological conditions in the soil that we were constantly having to react to.

A challenge particular to this project is that it's a balanced site: no export or import of soil was allowed under the permit. That was done partly for the neighbors' benefit, so that there were no semi-trucks coming and going with earth. It created challenges in terms of how the work was sequenced.

RB: Not everybody gets along with Richard [Meier], but I get along very well with him. At the beginning of the project my boss said to me, "I don't care what it takes, I want you to get inside Richard's head." Once you get in there and find out what he's really looking for, it makes part of the challenge go away. Working with Richard is like designing jewelry. He wants you to deliver perfection. Until you can deliver perfection, he is not happy with you. Costs went up as a result of that. For every handrail, every piece of metal, he wanted crisp corners. It was difficult to indoctrinate the subcontractors who were used to development work downtown. Without total team effort on this job, we couldn't have pulled it off.



CHRONOLOGY

1987

FEBRUARY Dinwiddie Construction, which built the original Getty Museum in Malibu, is named general contractor to oversee the 1,200-person daily work force.

AUGUST The master plan of the Getty Center is approved by the Los Angeles Planning Commission. A Conditional Use Permit is granted with 107 exceptions on issues ranging from the scale of the buildings, to the cladding color, to site access, all concerns raised in meetings with community groups.

1989

JUNE Thierry Despont is hired to develop the interiors of the decorative arts galleries.

NOVEMBER Construction begins at the parking facility.

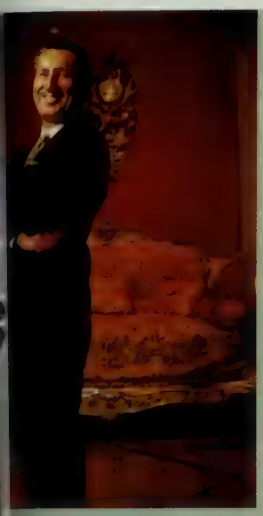
1990

MAY The Trust approves the choice of Italian travertine and off-white metal panels for the exterior.

1991

MARCH The L.A. Planning Commission grants final design approval.

OCTOBER The Tru unveils final desi to the public.



Thierry Despont
Gallery Design Consultant, J. Paul Getty Museum
First the museum contacted me to design the decorative arts galleries. The curators thought they could not display the collection in a stark, modern white environment and that the galleries should be sympathetic with the collection. I was involved early on. Construction had not started. Richard [Meier] had defined the envelope, but I could order the series of rooms and work with Richard on transitions between spaces to give a sense of coherence to the period rooms. It worked well.

The painting galleries were a different story. Richard designed the spaces. John [Walsh] wanted someone to help design the interior finishes: textures, colors, fabrics, flooring. One of the good things about [this part of the commission] was that by then I had a good working relationship with Richard. He would have preferred to do it completely, I think. But I feel I introduced textures, colors that are best for the paintings yet respect Richard's work.



Robert Irwin
Artist, Central Garden
The garden is almost a living room. It happens in this very powerful architectonic setting, and it takes all its cues from the architecture, which is the main event. How do you get from Meier's geometry to my texture? Everything in the garden starts with a geometry, but in most cases it's so compounded that at first you experience it as pattern or texture.

I've been gathering plants for years. I've handpicked every single plant here myself—over 1,000 varieties and species, not to mention the numbers. We've been budding trees for about two years. In about four years we'll start shaping them, but it will be seven years before they're done. At first I'll have a sun garden and later a shade garden.

The focus of modern art for me is the phenomenal, the idea that things are not concrete: our world is transient. A garden is a great place to exercise that argument.

1992

IUNE The Trust commissions artist Robert Irwin o design the Central Garden.

1993

OCTOBER Hanna/Olin, now the Olin Partnership, is brought in as the landscape architect.

1994

JANUARY 17 The Northridge earthquake causes hairline cracks to welded joints in the steel, necessitating a reexamination of welding procedures.

MAY Despont is commissioned by the museum to work with Meier on the gallery finishes.

1995

JANUARY The museum approves the gallery skylight and lighting systems.

1996

SEPTEMBER The Getty staff begins moving in to the North and East Buildings. The first board meeting is held at the Getty Center.

1997



DECEMBER The public dedication is held.



RECOGNIZING CITY, MOUNTAIN, AND OCEAN: SITING THE GETTY

Richard Meier established a site strategy by orienting buildings on two overlapping grids (diagrams, opposite). One aligns with the predominant north-south orientation of the site's mountain ridgelines and adjacent I-405 (San Diego Freeway), offering drivers a vista of the entire eastern elevation. The other, tilted 22.5 degrees to the northwest/southeast, aligns with the predominant grid of nearby Santa Monica.

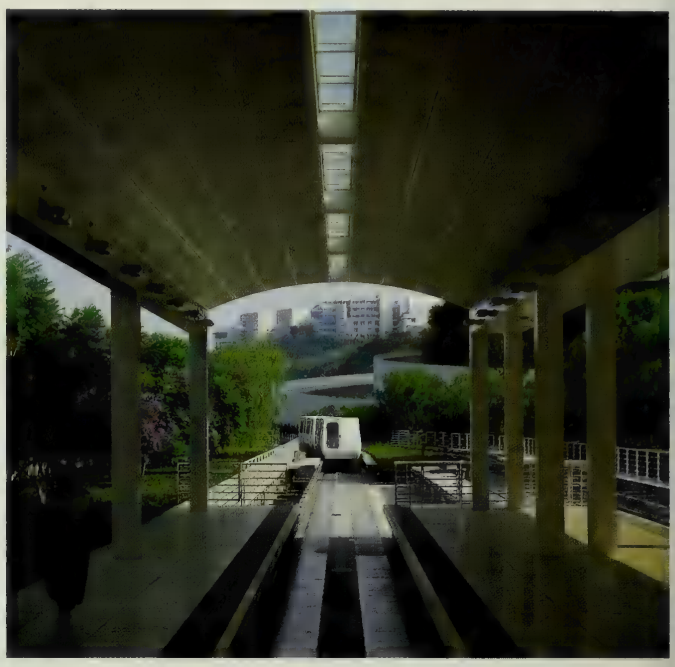
Meier arranged groupings of buildings at the three high points of the mountain, tying them via axes to the museum rotunda, which hinges the two grids. The topography in part shaped the buildings: they are widest where the land is flattest.

A series of plazas at elevation 856 unites the Getty's disparate structures. This datum is expressed architecturally as the height of the stone-faced base that surrounds the entire complex. (With a few exceptions "for compositional reasons," according to Meier's partner Michael Palladino, only the galleries are clad in stone above this datum.) The most spatially complex program elements are contained in the glass-and-metal structures that rise from the stone base. These are by intention visually lighter, and sculpturally complex.

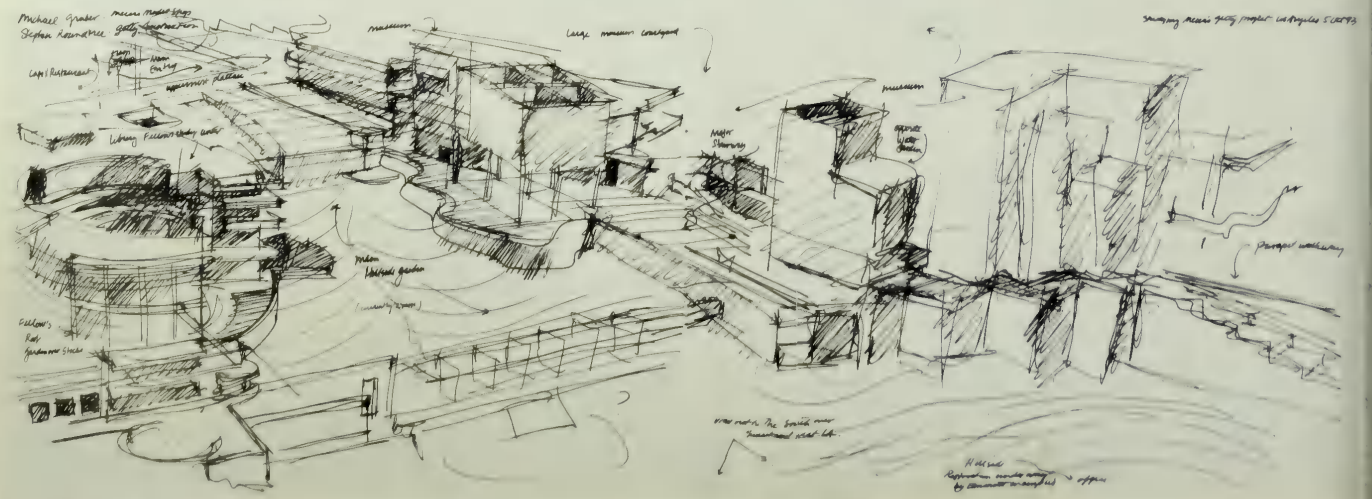
Having decided that visitors should leave their cars at a seven-level, 1,200-car parking structure, the Getty had to figure out how to transport as many as 1,200 people an hour to the hilltop. "We looked at buses, funiculars, various types of people movers," explains the Getty Center's Stephen D. Rountree. The center chose a cable-drawn, air-cushioned tram, which visitors board after passing a security checkpoint. The tram is quiet (its machinery is at the center, not in the cars), and it is fail-safe: with the power off, it loses its air cushion and settles onto brakelike pads. The single carriageway, which hugs the hill as it ascends, is much less obtrusive than an entrance drive would be, and its long cast-concrete spans minimized earth disturbance. (There is a service drive, which the tram's route parallels.)

On its way to the Getty Center, the tram passes through a landscape with tens of thousands of native oaks and other plants, specified by landscape architects Emmet L. Wemple and Associates to a grid plan conceptualized by Dan Kiley. These trees are more resistant to wildfire and offer better erosion control during the area's periodic bouts of fire and flood than the native flora that would otherwise gradually grow in. As additional wildfire protection, the Getty features external sprinklers and a million-gallon fire-fighting water reservoir.

James S. Russell







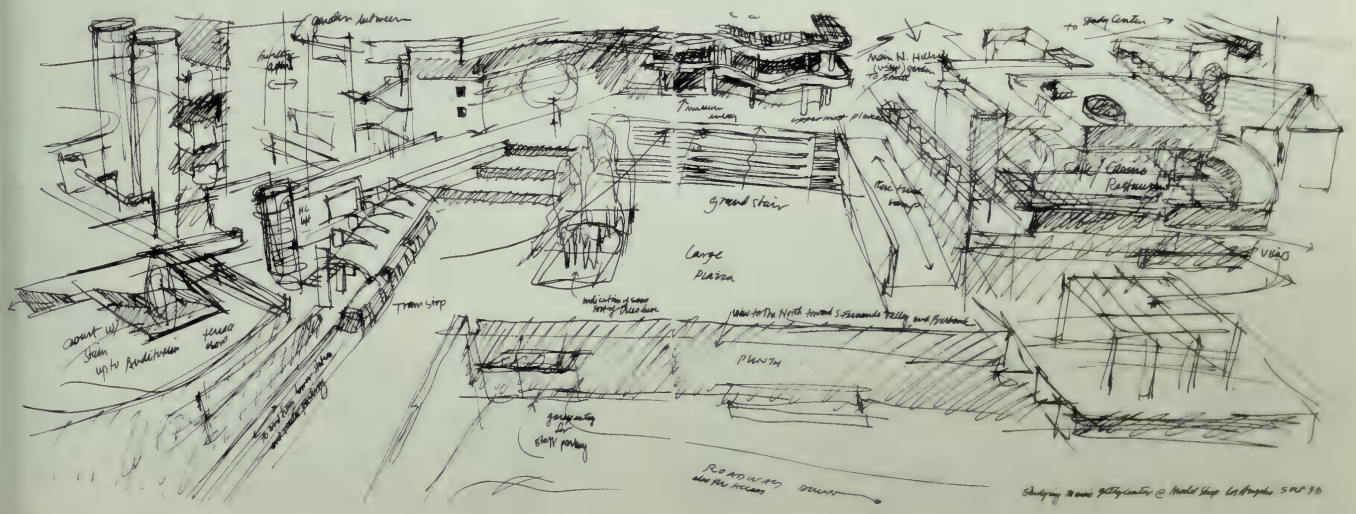






1. *North Quadrant*
2. *Museum*
3. *Humanities Institute*
4. *San Diego Freeway*
5. *Parking structure*
6. *Tram*
7. *Replanted trees*
8. *Rotunda*
9. *Vista along Santa Monica Mountains*
10. *Vista to Santa Monica*
11. *Vista to Pacific Ocean*

The Getty Center beckons from the driverless tram's canopied platform (opposite top; arrival plaza opposite bottom). Trees planted in a grid make the transition from the naturalistic site plantings to the Mediterranean-inspired landscape of the center (early sketches by designer Laurie Olin, below).





THE NORTH QUADRANT SERVES AS A GATEWAY TO THE GETTY CENTER CAMPUS

Surrounding the central plaza of the Getty Center, the four buildings of the north quadrant are the first ones visitors see when they arrive on the tram. While each building has at least some public component, the auditorium and the restaurant/café are the ones that visitors will have the most reason to frequent. The North and East Buildings, on the other hand, house mostly offices and support space for programs including the Getty Conservation Institute, the Education Institute, the Grant Program, the Getty Trust, and the Information Institute.

Because the North and East Buildings have similar programs, the architects and client once considered combining them into one structure. But a two-building scheme broke down the scale of this part of the campus and provided each institute or program housed inside with a more distinct identity, says Richard Meier partner Michael Palladino. It also allowed the architects to take advantage of the natural topography, separating the two buildings with a ravine that the Olin Partnership landscaped with palms and lush planting.

The L-shaped East Building (this page top and opposite page bottom) is anchored by the Getty Conservation Institute, whose mission is to preserve cultural monuments, historic sites, and works of art around the world. With three floors of offices and two floors of laboratories, the Conservation Institute occupies the largest portion of the 80,000-sq-ft building. The other two tenants are the Getty Education Institute for the Arts, which promotes arts education in K–12 schools, and the Getty Grant Program, which funds projects in the fields of art history, museum practice, and conservation. The most public component of the building is a two-story cylindrical space used as a library and information center.

Because the building is nestled into a ridge overlooking the San Diego Freeway, floors that are below grade on the west have windows on the east. Terraces on three sides, balconies, and outdoor stairs and corridors make this building the most "Californian," or open to the environment, of the entire Getty complex.

Essentially an office building with long bands of horizontal glazing, the East Building, says Miguel Angel Corzo, director of the Conservation Institute, "is the only building that doesn't reflect its function [on the outside]. What happens inside is that we think."







1. *North promontory*
2. *Auditorium*
3. *North Building: Information Institute; Trust administration*
4. *East Building: Conservation Institute; Education Institute; Grant Program*
5. *Arrival plaza*
6. *Restaurant/café*

One of the key characteristics of the Getty campus is the diversity of outdoor spaces—from the palm-studded "ravine" between the North Building (left in photo above) and the East Building (right in photo) to the grassy lawn in front of the East Building (right). Stone-clad plinths support the metal-and-glass structures of the East Building (opposite top) and the restaurant/café (opposite bottom).



And inside, the portion of the building used by the Conservation Institute reflects what Corzo thinks. Although the building was originally designed with traditional closed offices, Corzo changed the program to open offices when he became director midway through the project. "What you see inside is a philosophy based on teamwork. I was against [private] offices," he says. Colored walls are another unusual aspect of the building's interiors. Meier worked with designer Donald Kaufman to develop colors ranging from a grayish blue to peach and brown, which were used to emphasize procession through certain spaces and as transitions between areas with plenty of sunlight and ones that are darker.

The 64,000-sq-ft North Building is home to the Getty Information Institute and administrative offices of the Getty Trust. The Information Institute, which occupies two of the building's six floors, makes resources on the arts and humanities more accessible through digital technology. "We explore how networking technology can overcome the limitations of physical space," explains Eleanor Frank, the institute's director. The physical space occupied by the institute is traditional in layout, with managers in offices on the perimeter, staff in open areas adjacent to the managers' offices, and computer programmers in private offices in the center of each floor. Extra cabling for heavy computer use was one of the special needs of the staff.

With its arching roof and location at the north end of the hilltop campus, the 450-seat auditorium is a landmark that helps orient visitors when they arrive on the tram. The largest indoor assembly space at the Getty Center, the 31,000-sq-ft

A variety of sun-shading devices, including metal fins, brise-soleils, and overhangs, are used on the south elevation of the North Building (bottom). The lobby of the building is a clear-glazed, two-story space (below).





All of the buildings at the Getty Center have their main entrances on a common "plaza" level, which often is a middle floor. Visitors enter the East Building from a bridge (left in photo above), crossing a courtyard cut into the hillside. Two floors of offices are above the entry level, two floors of laboratories below. In the East Building, the Conservation Institute worked with Meier's interiors team, headed by senior interior designer Christine Kilian, to create open offices (right) with conference rooms on the perimeter. Curved perforated-metal panels above workstations reflect light.



Arriving at the hilltop campus by tram, visitors see the auditorium (bottom) and a helipad for firefighters (lower left in photo bottom). Solid on its north elevation, the auditorium is more transparent on its south side (bottom right). Inside, the facility seats 450 (below).



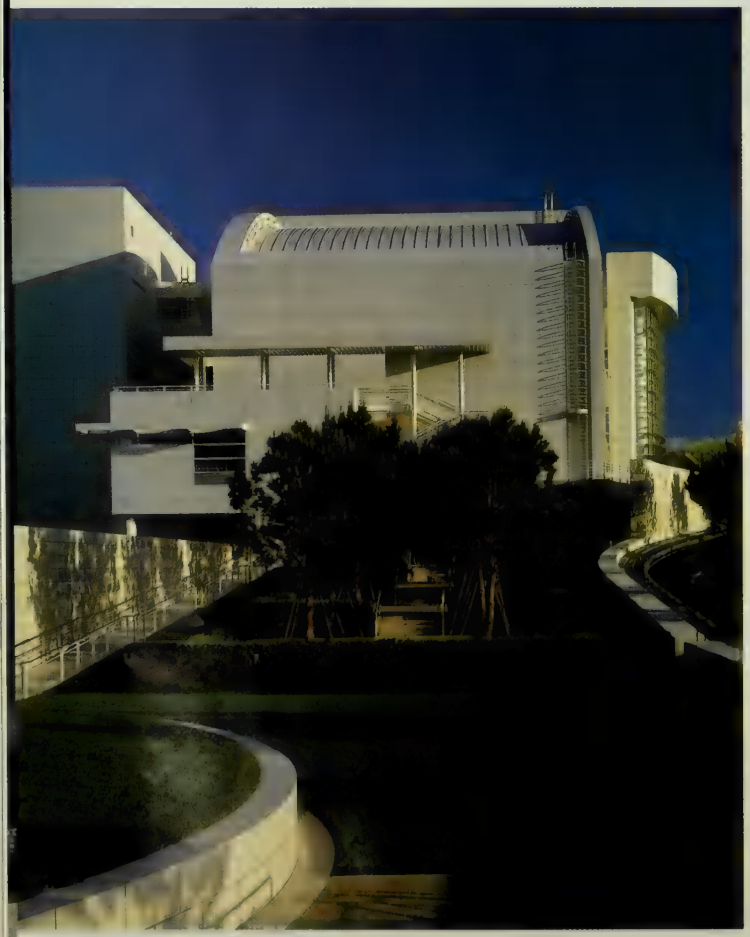
auditorium serves the entire campus and can be used for a variety of events, including symposia and small-scale musical performances. Simultaneous-translation equipment allows the auditorium to accommodate people from different cultures.

Diagonally across the arrival plaza, the 29,000-sq-ft restaurant/café building is another amenity shared by everyone at the Getty. Approximately equidistant from the North and East Buildings, the museum, and the Research Institute, the 650-seat food-services facility offers three levels of dining: a cafeteria on the plaza level, a restaurant above, and a boardroom with private dining on the top floor.

The restaurant/café building caters to Getty staff as well as visitors. Taking advantage of the mostly benign Southern California climate and great views to the south and west, the facility offers extensive outdoor dining areas. On the plaza level, the cafeteria-style operation has 270 seats indoors and dining for 150 on a wraparound terrace. Pivoting glass doors can open the indoor area to the outside. One floor above, the restaurant has seating for 150 people indoors and 120 outdoors. Even the boardroom and private dining area on the top floor have their own outdoor space.

Brise-soleils and pergolas provide shade, and the architects are experimenting with outdoor screens to protect diners from the winds that often kick up. Indoors, gray translucent fabric shades offer another layer of sun protection when necessary.

On the plaza level, a metal pergola painted lavender (a color not usually found in Meier's palette) highlights the white wisteria flowers that will grow on it. A small café at the museum with outdoor seating is connected to the restaurant/café building's main kitchen by an enclosed service corridor on the plaza level. *Clifford Pearson*



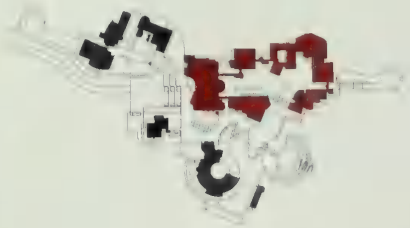


Opposite page: The restaurant/café (top) offers three levels of service: a café on the first floor (bottom left), a restaurant on the second, and private dining, including a boardroom, on the third (bottom right). The floors in the café are old-growth hemlock, and the ceilings are 15 ft high.









THE NEW J. PAUL GETTY MUSEUM SHOWS THE BEST OF ART AND OF LOS ANGELES

Next year, more than 1.5 million people are expected to visit the Getty Center and its most public part, the J. Paul Getty Museum. But the museum is more than a single building. In fact, it consists of five two-story-high gallery pavilions surrounding a central garden courtyard for a total of 55,000 sq ft of exhibition space. Richard Meier's design of the new museum was influenced by the ease of passing back and forth between gallery and garden courtyard at the Getty villa in Malibu. (The villa, now closed for a renovation and addition project being designed by the Boston-based architectural firm Machado & Silvetti, is currently scheduled to reopen in 2001 as a center of ancient art.)

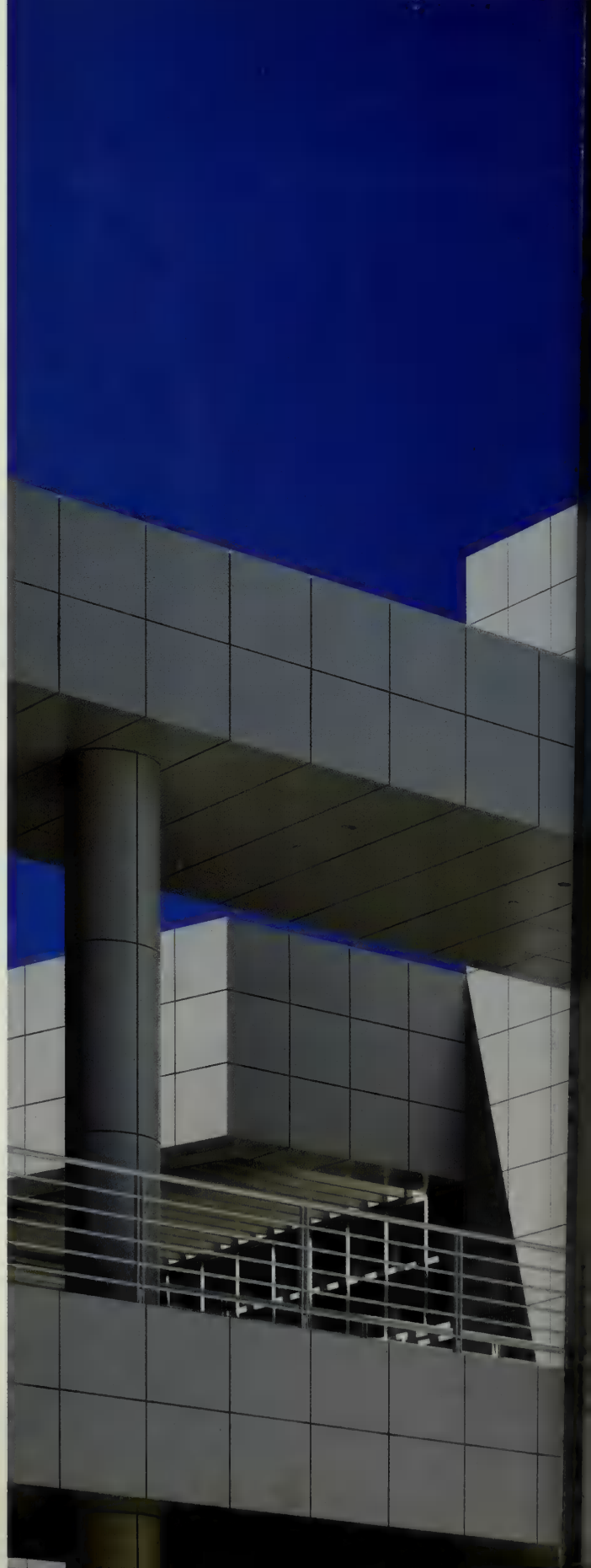
Meier contends that the openness of the multistory entry rotunda quickly communicates the museum's unique spirit to visitors. "Because of that lobby, visitors are able to see at a glance that the museum is not really a single building," explains Meier. "They might walk through the pavilions clockwise, which will let them see the collection in chronological order. But they might just as easily go straight into the central courtyard and start on the right-hand side, with the pavilion for temporary exhibitions."

The arrangement of the pavilions offers a variety of informal outdoor spaces, Meier explains. "It is not something we imposed. We drew it out of the topography."

The windowless lower-floor galleries are reserved for drawings, illuminated manuscripts, and photographs. Also on the lower floor is a suite of 14 galleries devoted to the decorative arts collection, which includes several complete rooms based on designs from the 17th and 18th centuries. Upstairs, the sculpture and painting galleries have skylights and a specially designed louver system, and they are interconnected by glass corridors. Conservation studios, staff offices, and below-grade art registrar offices and art-handling areas comprise the remainder of the museum's 360,000 gross sq ft.

"It's as if there are two different buildings," says Associate Director and Chief Curator Deborah Gribbon of the vying functional demands of the galleries and the three floors below grade. "First we talked [with Meier and his architectural team] about the galleries—what the nature of those spaces should be—and then we shifted our attention to the nitty gritty of the floors below ground, which are intensely complicated and must accommodate many different users and were in fact given Richard's complete attention. That occupied several years. Then we turned our attention back to the specifics of the galleries." Adds Barbara Whitney, Associate





PHOTOGRAPH © JOHN BOOMER/COURTESY THE GETTY TRUST



Meier says he studied the Spanish Steps in Rome for the approach to the museum (opposite). The entry rotunda dominates the central courtyard (right).

Director for Administration and Public Affairs, "We were always working from the inside out."

Meier also designed transition spaces for each pavilion, which allow for visitors' eyes to adjust from the sun-drenched courtyards to the much lower light levels in the galleries, and which also help control fluctuations of heat and humidity from visitors entering and leaving. Each pavilion has a skylit two-story lobby and an adjacent room with interpretive information on each collection on view and computer terminals offering access to in-depth information about the collections overall.

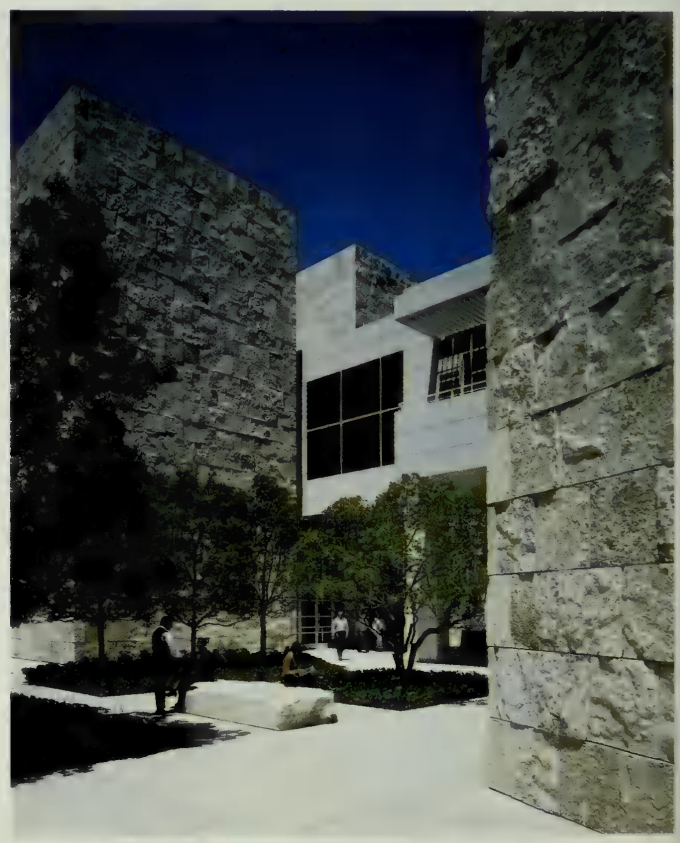
Museum Director John Walsh had specific ideas about how best to present the works of art inside the galleries. Of Meier's response to the museum's mandate, Walsh says: "Because he was required to take a functionalist view of lighting in the galleries, where the light had to behave in certain ways [so it didn't overexpose and potentially damage the paintings], you couldn't splash the walls with it, which he does brilliantly in the public spaces." For the daylit galleries, "The whole idea is repose, naturalness," explains Walsh. Says Meier's partner, design architect Michael Palladino, "Walsh's idea of lighting was a revelation to me. I had always heard from museum directors and conservators that there was a perfect light level. Here there is a range."

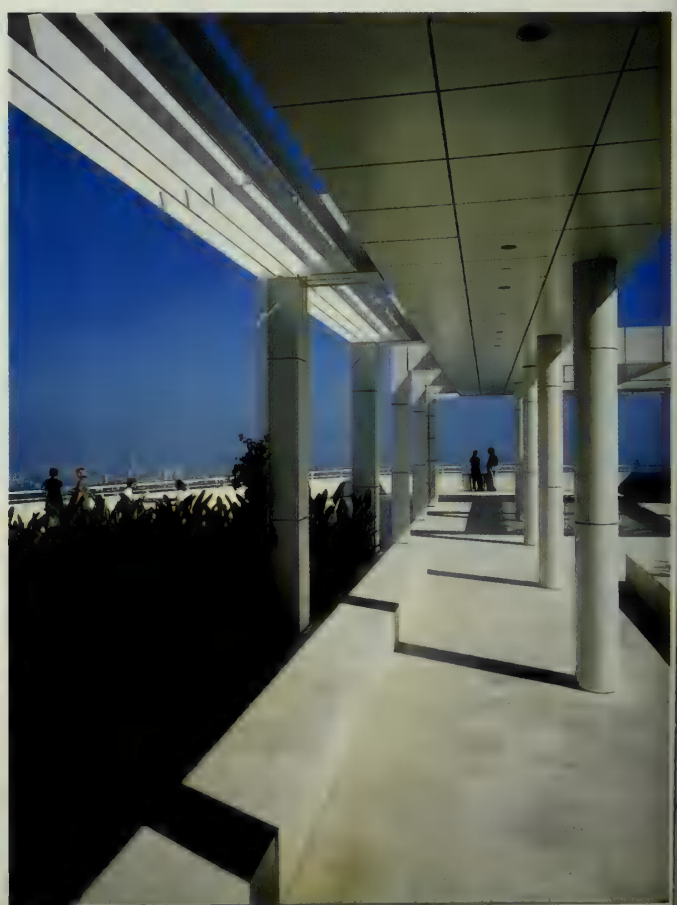
To achieve the desired lighting levels and overall spatial effect, a gallery mock-up was built on site a year in advance of the actual spaces. "We learned as much as they learned," reports Jim Hearn, Dinwiddie Construction Company's superintendent in charge of the museum. And when the time came to build the real thing, the subcontractors "were more at ease," says Hearn. Palladino agrees. "The mock-up gallery and the lighting testing took out a lot of the guesswork. It was invaluable in getting consensus. And the contractor knew what the expectations were."

Meier's tendency to generously splash light through interiors served him and the museum well in other spaces. "Below grade was the place that Richard's love of light and his desire to have it penetrate every single space was, to us, an added bonus. He got all that light in three levels below grade where in most museums there's never any daylight," observes Whitney.

The elaboration of the gallery spaces was also a *(text continues)*







Travertine-clad gallery pavilions grouped around a courtyard (below and top right) are connected by glass corridors (above).



PHOTOGRAPHY: TOM BONNER/©NGA TRUST



The central rotunda will remain mostly open, allowing visitors to pass easily between inside and outside.

1. *Museum lobby*
2. *Courtyard*
3. *Bookstore*
4. *Orientation theaters*
5. *North pavilion*
6. *East pavilion*
7. *South pavilion*
8. *West pavilion*
9. *South promontory*
10. *Museum café (below)*



TECHNOLOGY

Precise control allows Pacific daylight to illuminate art. Richard Meier's office wanted to keep the blue sky visible in otherwise windowless art galleries. This may not seem much to ask, except when curators desire lighting that is beautiful but does not damage extremely precious artworks. Getty officials agreed they would like to see the sky, too, as long as no direct sun fell on works of art.

Working with the curatorial staff, Meier's office developed "standard" galleries of cube and double-cube proportioned rooms. The ceilings slope up to skylights (section, opposite) glazed in neutral-tinted glass of only 35 percent transmittance. (Similar criteria applied to the shed and inverted-V skylight variations.) Lighting designers Fisher Marantz Renfro Stone built mockups to test daylight and electric lighting schemes. And one actual gallery was completed early to verify design assumptions.

The Fisher Marantz team had worked with Venturi Scott Brown and Associates on London's Sainsbury Wing, where the galleries had a similar shape, inspired by Sir John Soane's Dulwich Gallery. Using a combination of skylights, operable louvers, translucent glass, and clerestories, the London galleries provide daylight in a far more diffused way, and lighting for the art depends more on electric fixtures. With light in Southern California both more plentiful and more dependable, the Getty designers devised a simpler system. Outside the glass, between stone-clad parapets, an automated louver system, custom designed by C/S, protects all the gallery skylights. (The blades run east-west so that they open north-south.) The louver system is timed to open as much as 45 degrees depending on season and time of day. The blades open northward, but they can rotate 135 degrees to open southward when needed.

Three photocells per gallery measure the actual ambient light and override the preset levels as needed. With the diffusing effect of the sloped walls, the paintings are entirely lit by daylight, and the light levels vary throughout the day, maintaining an average exposure of 250 lux (about one-fourth the level of a brightly lit office). When light levels fall at dusk or on cloudy days, the photocells cue a gradual dimming-up of a set of special low-voltage 100W quartz lights filtered blue to match the color of daylight. The fixtures and photocells are recessed on tracks below the skylights (detail, right). At night a second set of matching unfiltered lights comes on as well as exterior lights that bounce light off the closed louvers into the galleries.

Lights must throw beams an unusually long 40 ft, but manufacturer Edison Price was able to meet both California's strict energy requirements and the Getty's required lighting levels using 100W lamps. The company devised a special yoke that angles the lamp over the edge of the recess and lock-downs so that lamp replacement would not compromise the fixtures' precise focus. Lamps are replaced through a roof access panel. Lutron routed controls through the museum's building-management system; both curatorial and operations staff may monitor gallery status. *James S. Russell*

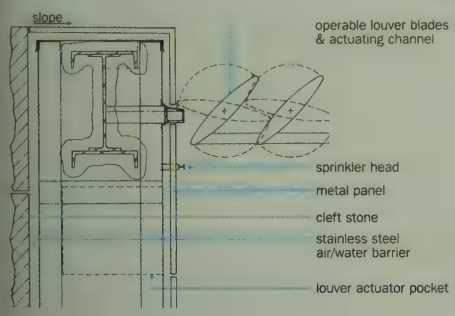




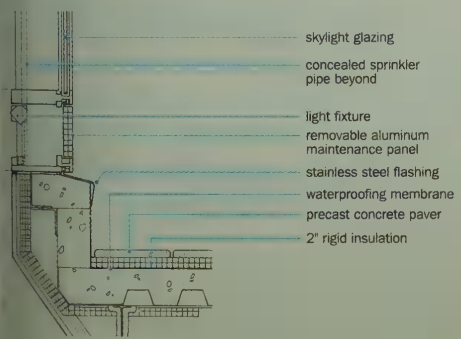
A skylit lobby in the North Pavilion (right) provides a visual break from the colors, textures, and artwork of the galleries. The South Pavilion atrium (left) gives a view into a Neoclassical panel room. The museum's generously daylit conservation laboratory is located in the saw-toothed portion of the east facade (below).



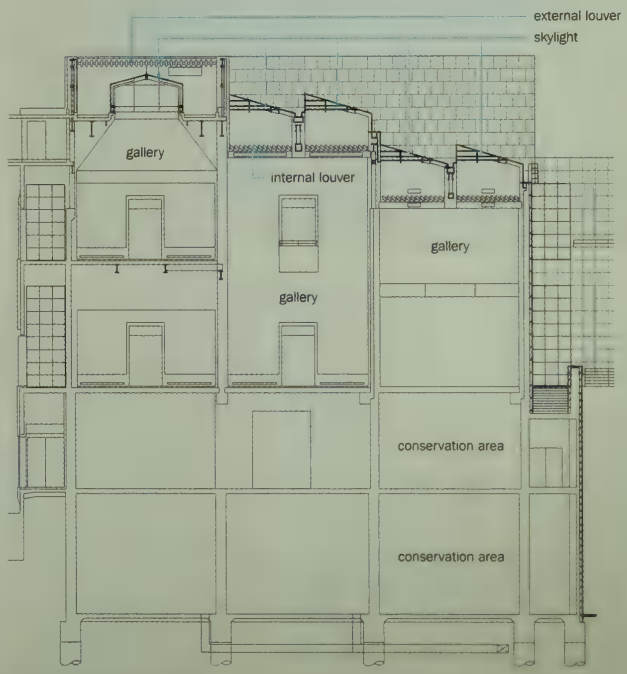




SECTION AT GALLERY SKYLIGHT PARAPET



SECTION AT GALLERY SKYLIGHT SILL



SECTION THROUGH GALLERIES

C/S prebuilt 17-in. louver sections as long as 17 ft (detail, top left). Lighting and photocells were set in [redacted] below the skylights (detail, left). Gallery building section (above) shows varying skylight and louver conditions.

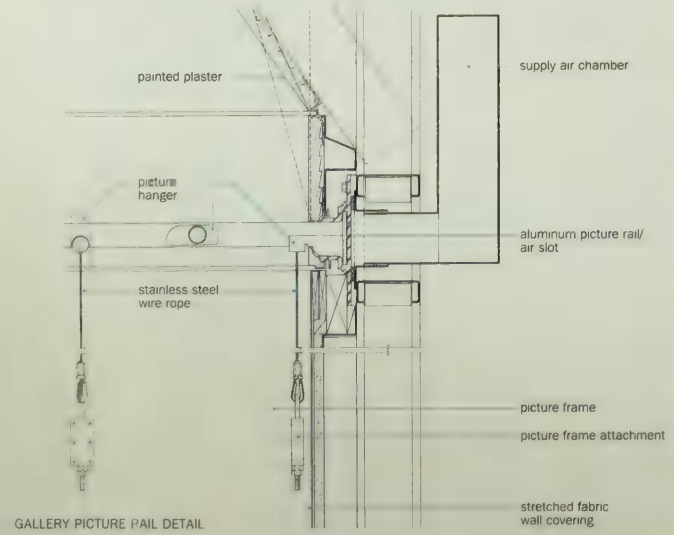
matter of considerable debate. As Stephen D. Rountree, the building program director during the design process, recalls, "I knew early on that there was a tension between what John [Walsh] wanted and what Richard [Meier] wanted for the galleries. There came a point when we weren't making progress, so I asked Thierry Despont [who had already completed his design of the lower-floor decorative arts galleries] to be a facilitator in the upper galleries in terms of the finishes and colors for the gallery walls. The result is more Richard than John, who became more comfortable with a modern vocabulary."

Of his choice of finishes for the painting galleries, Despont says, "I thought the fabrics should be fairly flat or very stretched so that they would respect the quality of Richard's space. For sculpture, I thought it would be nice to have the naturalness and classic quality of plaster walls."

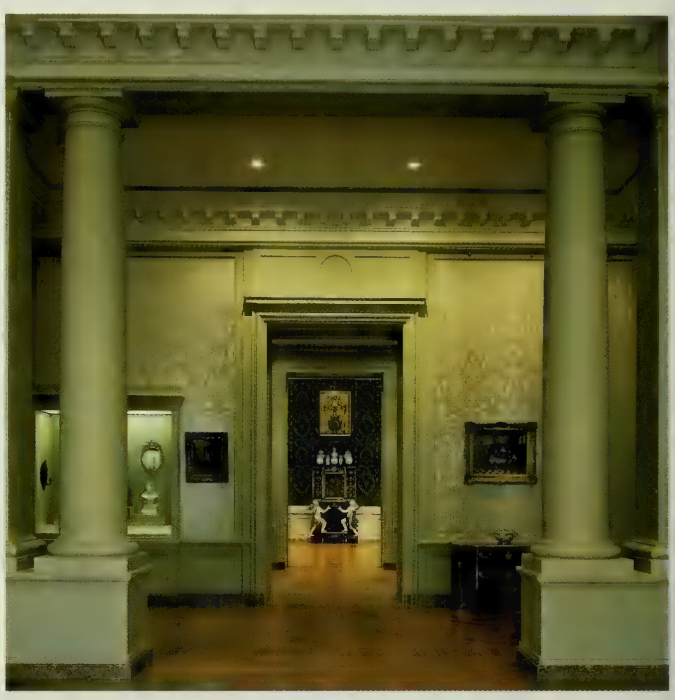
Despont worked with the museum staff to choose a range of lush wallcoverings: from "Medici Red" cotton velvets for the 16th-century paintings and "Belgian Green" wools for French and Flemish paintings, to "Rembrandt Brown" cotton blends for the Rembrandts and other Dutch paintings and "Getty Blue" silks for the French, British, and Italian "grand paintings." Yet the fabric choices, unlike the tinted plaster finishes in other galleries, are by no means final, at least for Despont. "The fabric and painted rooms are meant to be able to be changed after two years," claims Despont. "Are the fabrics frightfully expensive? No. Is the detailing such that they are easy to replace? Yes. Taste changes so fast; taste evolves. Why think that you forever have to have galleries that are in the 1997 opening state?"

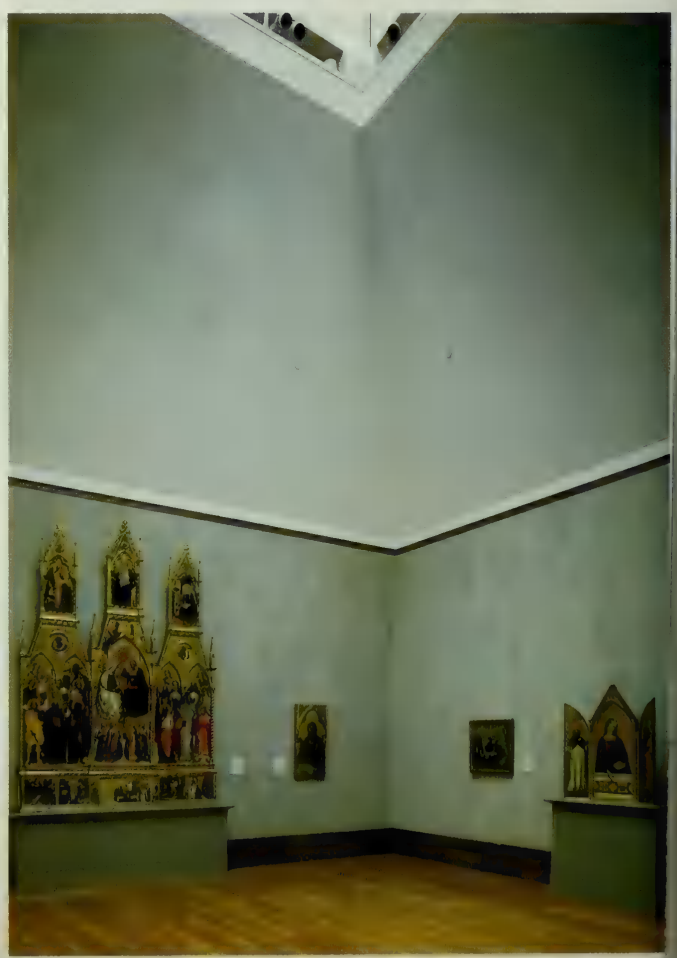
What's more, the collection itself is in a constant state of transformation. Since J. Paul Getty's estate was settled in 1982, the museum has spent nearly $1 billion on art acquisition and it continues to add to its collection. While some significant purchases were made while the Getty Center was being designed and built (most notably, perhaps, Vincent van Gogh's *Irises* and more recently a coveted Fra Bartolommeo panel), the pace has not been as frantic as outsiders might speculate, say museum authorities.

"The collection didn't grow as rapidly as we thought," explains Gribbon. "We collect opportunistically, depending on what's available." Important purchases did and will continue to influence the arrangement of artwork within the galleries. "There was some calibration [following significant acquisitions]," says Gribbon. "Overall, we've been generous in allocating space for the paintings. Here we have an opportunity for long vistas." *Karen D. Stein*

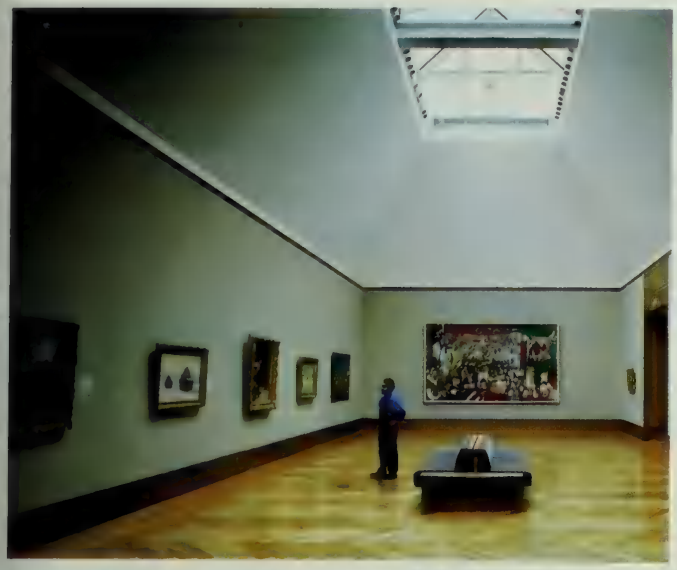


GALLERY PICTURE RAIL DETAIL





The decorative arts galleries (above; opposite page, middle and bottom left) are in windowless spaces on the ground floor. The second-floor painting galleries have custom skylights and louvers.

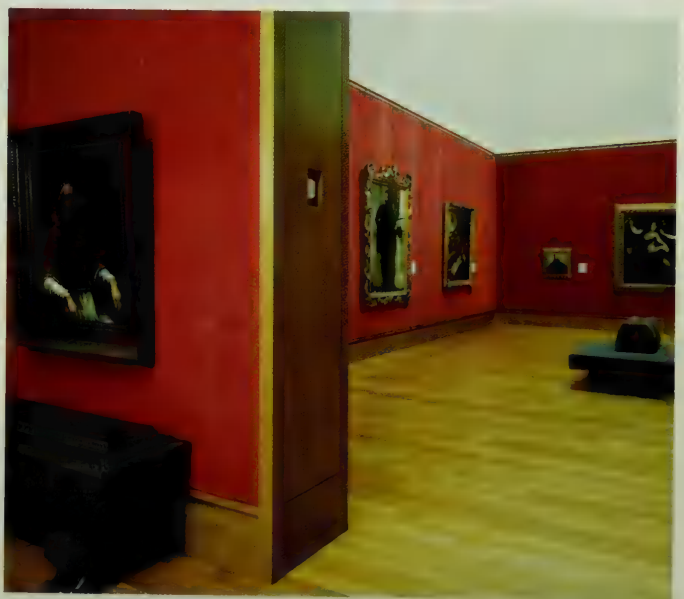


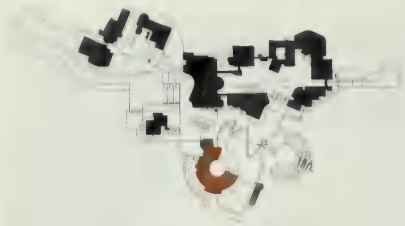












A "SECULAR MONASTERY," THE RESEARCH INSTITUTE SETS ITSELF APART

The scholarly arm of the Getty, the Research Institute for the History of Art and the Humanities houses a library with 840,000 volumes and offices for a staff of about 150. In addition, the 201,000-sq-ft building has offices for 30 visiting scholars, study carrels for guests using the library on a day-to-day basis, seminar rooms with views of the Central Garden, a 120-seat auditorium, and a small exhibition space.

While the Getty Museum had a strict program due to the special needs of the artwork, the Research Institute offered Richard Meier and his associates a chance to be more free with their architectural forms, explains Thomas Reese, deputy director of the institute. The result is a building that is more typical of Meier's work than the museum but also is more visually expressive, says Reese.

Because the Research Institute is the Getty building closest to a residential area, homeowners in nearby Brentwood were particularly concerned about its design. Rigid guidelines negotiated with the Getty's neighbors established setback, height, and view-line requirements that helped shape the massing and design of the building.

The architect's response was to tuck all of the closed book stacks and some of the library's other functions into a "plinth" terraced into the site's west-facing slope, explains Meier partner Michael Palladino. Skylights along the perimeter of these terraces bring daylight into the spaces below without reflecting light into neighbors' homes.

A multidisciplinary center that attracts scholars from many different fields, the Research Institute needed a building that would encourage interaction between staff, scholars, and visitors. Given a pie-shaped diagram showing which functions need to be close to each other, the architects turned the simple drawing into the building's parti—a circle allowing easy access from one section to another.

As the design developed, the architects sliced a wedge out of the southeast quadrant of the circle to open views to the Central Garden and glazed the interior perimeter of the building so people could see at a glance what was happening in other parts of the institute. "The building reflects a sense of integration," says Salvatore Settis, director of the Research Institute. Visiting scholars, who spend up to a year at the institute, can set up shop in one of three locations: on an upper floor where offices form "an academic village," in a "scholar's tower" separated from the circular building by below-grade book stacks, or in a part of the stacks area itself.

Less public than the museum or the auditorium, the Research Institute is set slightly apart from the rest of the Getty campus by a stone-clad gateway and by its inwardly focused circular form. According to Reese, former director Kurt Forster used to refer to the institute as "a secular monastery."

Once inside the building, though, a sense of transparency takes over. Floor-to-ceiling clear-glass curtain walls provide views of the central courtyard from the upper floors, while book stacks on lower floors are arranged in a radial pattern to provide views to a central skylit space. The architects had wanted to create an interior ring of space extending from the lower level of stacks to the upper floors of





The west facade steps back to reduce the impact on neighbors. Skylights and courtyards bring sun below grade (below).



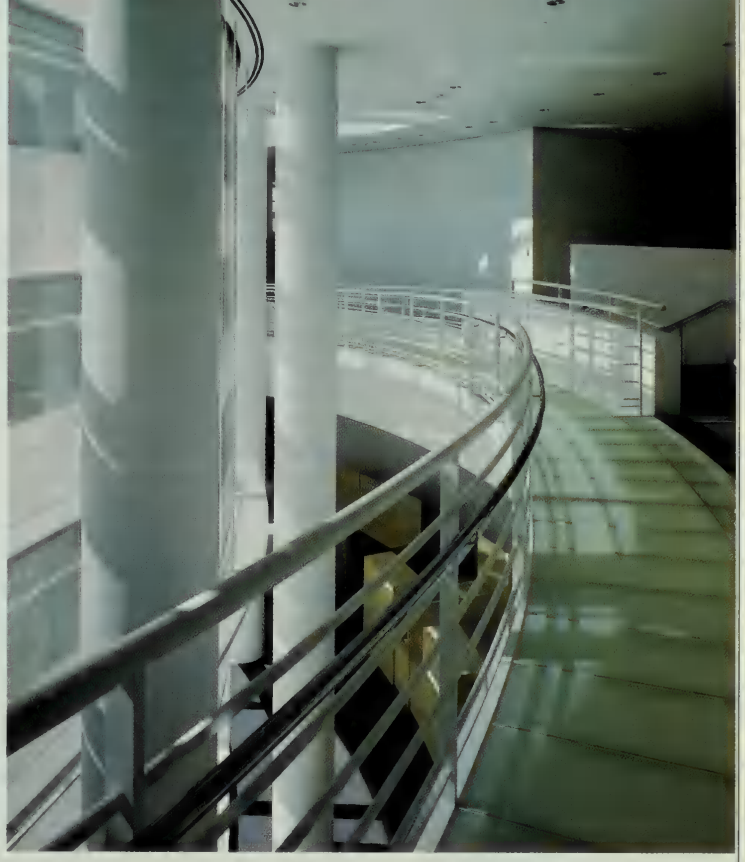


offices, but fire codes restricted what could be done. Though the upper office floors ultimately had to be separated from the tall space by glazing, a sense of openness remains—thanks, in part, to daylight coming from above and a dramatic curving glass ramp that leads from the entry to the courtyard level.

To one side of the ramp, a series of rooms for periodicals and reference materials flow one into the other, each a couple of steps down from the previous one. On upper floors, curving bookcases line the circular corridor, encouraging scholars to browse in this common space and interact with others.

The circular plan with nonstructural partitions separating different areas was designed for flexibility. Indeed, even before the building was completed, its ability to adapt to changing needs was tested when the clients decided they needed seminar rooms on each of the floors above grade. By shifting interior walls along the building's great curve, the architects carved out space at the open end of each floor for a seminar room.

Reviewing the Research Institute's new home, director Settis states, "It's powerful and flexible, and it gives us a strong image." *Clifford Pearson*



Steel framing over a concrete plinth makes the building lighter, an advantage in a seismic zone. Clear-glass curtain walls (opposite) are protected from sunlight by gray fabric scrims. A ramp made of two layers of glass planks (right) leads from the entry. Stacks are laid out radially to preserve views (below).



NINE MONTHS OF RESEARCH AND DEVELOPMENT YIELD STONE FABRICATION INNOVATION

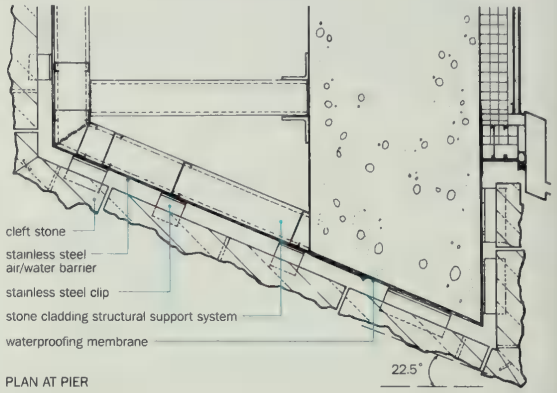
The battered stonework at the Getty Center is Richard Meier's biggest departure from the elegantly sheer language of metal and glass that has been his signature for 30 years. It is through the stone that Meier wanted to "ground" the Getty complex in the blond tones of the site's prevalent Santa Monica sandstone.

As early as 1989, "stone samples began to arrive from all over the world," says principal James Crawford, of Meier's office. Granites, sandstones, and limestones were all considered before the team settled on a supplier, DBM Hatch, and "Roman classic" travertine.

The standard honed finish of the travertine when seen at great distances and across vast wall areas "looked like wallpaper," says Crawford. It took almost nine months of work with Carlo Mariotti, of the Italian stone firm Carlo Mariotti and Family, in Bagni di Tivoli, to devise a suitable fabrication technique. Mariotti used a guillotine to split the 30-in. square stones along their bedding planes, giving them the texture Meier sought (below).

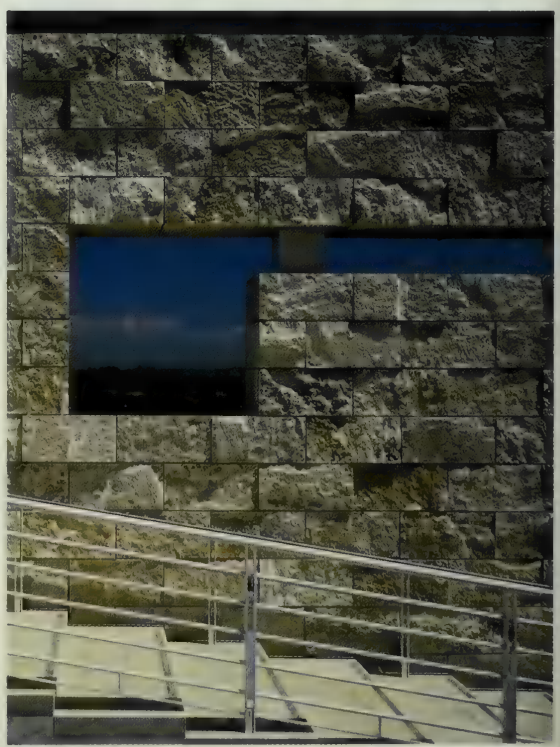
Because the guillotine would crush all but large stones, pavers were sawn out from the middle after clefting. Outside corners were made by laminating matching cleft faces onto the sides of pieces. The mitered joints are all but invisible.

Open joints and air space behind the stones allow drainage from the waterprooofed cavity (details, right and opposite). Lacking sealants that require maintenance, pick up dirt, and may stain stone, the open joints also allow the stones to move independently in an earthquake. *James S. Russell*

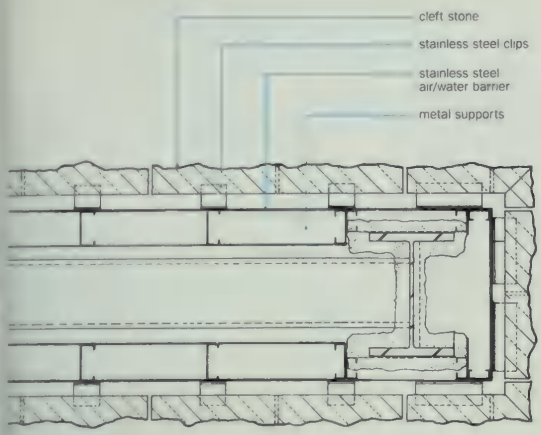


PLAN AT PIER

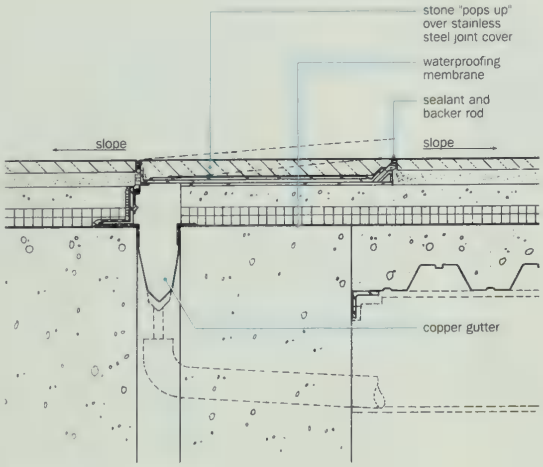




Each stone's cleft surface varies as much as 7 cm, or 2 3/4 in. Stones bearing the many fossils revealed during the cutting process were reserved for positions where they could readily be seen by passersby. The stone was clipped to a waterproofed backup of concrete or metal, depending on the support condition (details, top).



PLAN AT PIER



PAVING SECTION AT SEISMIC JOINT

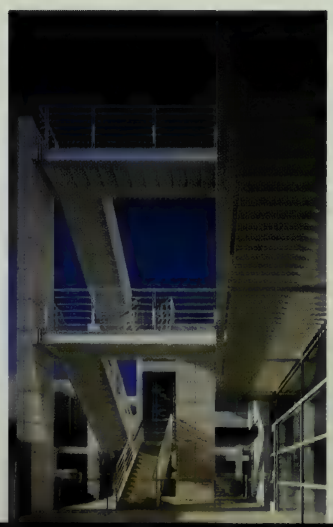
The Getty was constructed to high seismic standards. A pop-up stone paving panel avoids a metal-plate cover over a drained 5-in. seismic joint (left).

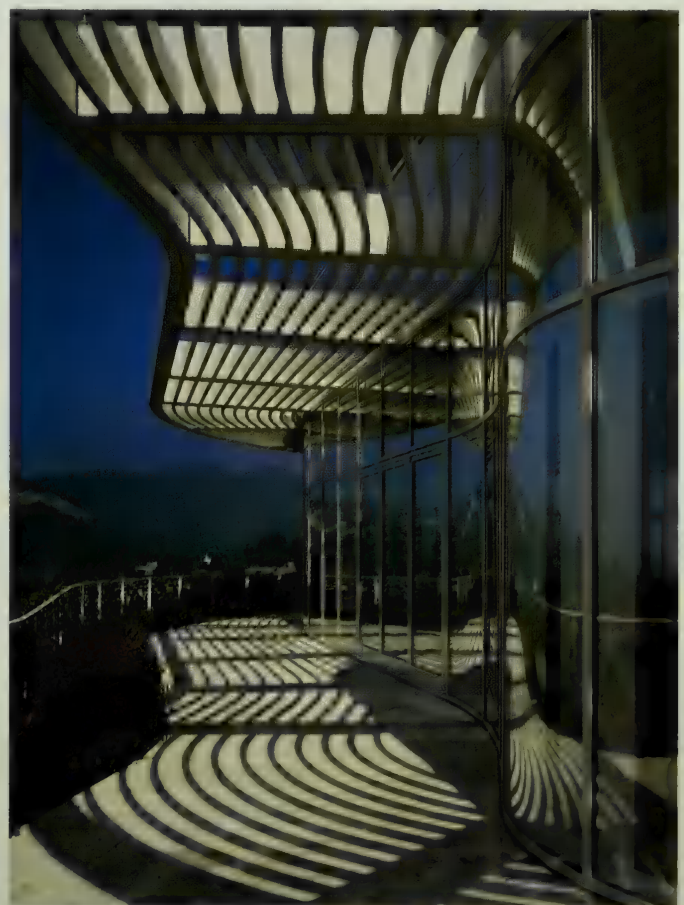
A CURTAIN WALL'S CRISPNESS BELIES COMPLEX INTEGRATED SYSTEMS

Like the Getty Center's stonework, the curtain-wall system is open-jointed, separated from the waterproof backup by a ventilating air space. The open joints permit lateral motion in earthquakes. If they had been joined with sealant, the joints would need to be twice their 3/8-in. width to meet seismic requirements.

Getty management supported Meier's desire to coordinate the location and appearance of the enormous variety of visible mechanical and electrical items. Both Meier's office and Getty management credit Harmon, Ltd., a curtain-wall fabricator and subcontractor, for handling the logistics such close coordination entailed. Skylight mullions in the galleries, for example, not only contain a sprinkler pipe and heads but also include wiring and nearly invisible heads for motion and smoke detectors.

One example of Harmon's inventiveness is the fact that instead of cantilevering the brise-soleils from the building's structure, the company fastened cantilevered tubular aluminum screens to the reinforced curtain wall itself, thereby avoiding leak-prone penetrations. (At 5 by 15 in., these are the largest tubes yet extruded, says Harmon's Brad Kumbera.) Especially challenging was the one-story-high sliding museum rotunda entrance wall, made by a firm in Tacoma, Washington, that manufactures subassemblies for Boeing airplanes. The curved glass had to be extraordinarily accurate, says Kumbera, because "it is integral to maintaining the 'squareness' of the doors." *J.S.R.*







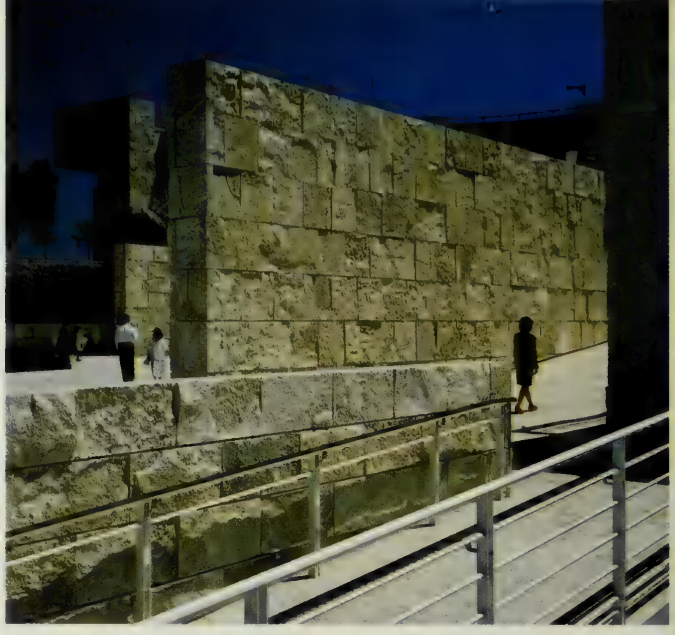
GARDENS AND COURTYARDS FILL THE SITE, WHILE ARCHITECTURE TAKES CENTER STAGE

Of the 110 acres of the Getty Center site, only 24 are part of the main campus, and out of those some 19 acres were left as outdoor space. Landscaping not only creates a link among the buildings but also makes a park that is itself an attraction for visitors.

Many professionals in addition to Richard Meier & Partners have contributed to the site plan, including Dan Kiley, who early in the project did conceptual studies. Emmet L. Wemple and Associates landscaped the sloped areas requiring remedial grading and the zone of the north entry parking facility. Hanna/Olin, now called the Olin Partnership, joined in 1993, creating an overall scheme for the complex that combines formal and informal courtyards (opposite) planted with trees, shrubs, and flowering plants, many native to California.

In 1992 San Diego–based artist Robert Irwin was commissioned by the Trust to design the Central Garden (below right), a 134,000-sq-ft work of foliage art that reestablishes a natural ravine between the new J. Paul Getty Museum and the Research Institute. Working with Richard Naranjo, the Getty's gardens and grounds manager, and the San Diego landscape architecture firm of Spurlock Poirier, Irwin devised a tree-lined walkway that leads visitors through a variety of garden experiences. The walkway crosses a stream, which flows over a rocky waterfall into a pool beneath a maze of azaleas.

Says Irwin: "This garden is going to have seasons, something you don't see much in this area. The real planting starts next spring, and that's going to take three years of coming here almost every other week to see what's working and what's not. That's part of the nature of this institution: doing research on how one maintains certain things." *Karen D. Stein*





Manufacturers' Sources

Aluminum cladding, aluminum windows and curtain wall: *Wausau Metals*
Aluminum finish: *The Valspar Corp.*
Stainless-steel windows: *A. Zahner Sheet Metal*
Ornamental metals: *Blakeway Metal Works*
Elastomeric roofing: *American HydroTech*
Balanced-door entrances: *Ellison Bronze Co.*
Travertine cladding and pavers: *Carlo Mariotti*
Sealant on stone: *ProSoCo, Inc.*
Weatherproofing seals: *Dow Corning*
Fire-control doors, security grilles: *The Cookson Co.*
Operable louvers: *C/S Group*
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Special glass: *Hehr, Downer, Sumiglas*
Curved glass: *Dlubak*
Custom glass: *GlassTech, UltraGlas, Architectural Glass Design*
Architectural coatings: *Tnemec*
Top pivot hinges: *NT Dor-O-Matic*
Locksets: *Schlage*
Stainless-steel door pulls: *Trimco*
Custom-color panic bars: *von Duprin*
Closers: *Norden, LCN*
Other hinges: *Rixon, Stanley*
Weatherstripping: *Ultra*
Acoustic gasketing: *Zero International*
Hollow-metal doors: *Pacific Steel*
Wood doors: *Anemostat, Brochsteins, Inc.*
Fire-rated vision lights: *TGP (Firelite)*
Wood flooring: *Kentucky Wood Floors*
Plastic laminates: *Pionite, Formica Corp.*
Architectural woodwork: *Wigand Corp., Fink & Schindler, Brochsteins, Inc., R.S. Bacon Veneer Co.*
Window-shading systems: *Levolor, MechoShade Systems*
Furniture: *Donghia, Knoll, Herman Miller, Lowensteins*
Upholstery: *Unika Vaev, Pallas Textiles, Maharam, Spinneybeck, Gretchen Bellinger*
Kitchen equipment: *U-Line, Sub-Zero Freezers*
Stairwell gates: *Washington Iron*
Floor tile: *Graniti Fiandre*
Resilient flooring: *Armstrong, Burke, Deutsche Linoleum Werke*
Carpeting: *Shaw Contract Group*
Wall fabric in galleries: *Rogers & Goffigon, French Needle, Yoma Textiles, Cooks Mills*
Display cases: *Helmut Guenschel, Inc.*
Lateral files: *Steelcase*
Millwork: *Wigand Corp., Brochsteins, Inc.*
Signage: *Carlson & Co., Neiman & Co.*
Tram-stop canopies: *C/S Group, Rudy Art Glass*
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Skylights: *O'Keeffe's, Inc.*
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Tram: *Otis Elevator*
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Interior fixtures: *Zumtobel/Staff, Prudential, Lightolier*
Exterior fixtures: *BEGA/US*
Dimming controls: *Lutron*
Faucets: *Kroin*



The Palm Garden between the East and North Buildings is one of the contributions of the Olin Partnership, which planned the series of gardens based on elevation and sun exposure: cool greens and purples on lower levels and lighter or hotter-colored flowering plants on higher terraces.

CRITICISM Robert Campbell takes a personal tour through the GETTY CENTER and finds old and new analogies.

It's been said before, and I'd rather be original, but I've got to say it again. The Getty Center is a feast of breathtaking photo ops and marvelous small moments, but it fails to cohere into a completely satisfying whole. This isn't a pan. Under any normal circumstances, you'd say the Getty was a wonderful building. The problem is the level of expectation. Here are a world-class architect at the top of his game, a great site, a billion-dollar budget, and a program rich in functions that often inspire distinguished architecture: an art museum, a library. And the museum is terrific, and so is the library. But the many brilliant architectural instruments don't quite build to a satisfying chord.

An immediate qualification: at the time I made my visit (to meet RECORD's deadline), the landscaping was far from complete. Artist Robert Irwin was still installing his site piece, most of the trees and other plants were yet to come, and there was no water in the big reflecting pool. Like much good Southern California architecture, the Getty is partly an exploration of all the ways you can relate indoors to outdoors. The landscape was designed by titans in the field—Dan Kiley, later replaced by Laurie Olin—and I'm sure it will help, but it's hard to believe it will completely solve the problems. Richard Meier had hoped for much more water—he wistfully mentions the Villa d'Este—a hope that was vetoed by the client, who didn't want to appear to be abusing natural resources in water-starved California. A mistake.

It isn't easy to describe the Getty. The Getty people, including Meier, refer to it as a campus. But I found two other analogies more helpful in thinking about it.

The first analogy is Hadrian's Villa. The same description applies to both: each is a sprawling villa sited on high ground, with a long view, but with higher land in the background. In each, water features are the strongest accents. And each is organized by two grids that collide at an angle of about 20 degrees (22.5 at the Getty), with cylinders acting as pivots from one grid to the other.

The grids, says Meier, respond to the street grids of downtown Los Angeles to the east and of Santa Monica to the west. But you're unaware of any such geometric context when you're on the site, and Meier has often employed rotated grids. They are a device that grew from the need that was felt, in the 1960s, to create complex form without using applied ornament or symbolism.

Hadrian's Villa offers one way of thinking about the Getty. It existed in order to be appreciated: a retreat for a romantic longing to wander and think poetic thoughts amid caves and pools and sculpture. Meier imagines you behaving that way, too: strolling in and out of galleries and gardens, in and out of the sun, on an isolated Olympus far from the city. The Getty's dark but skylit galleries are the architect's equivalent of the underground cryptoporticus at Hadrian's Villa, which is daylit as well. Instead of capturing sunlight with marble figures, Meier grabs it with his own architectural sculpture. Both buildings are places to be probed and explored over time, places in which you come unexpectedly on one feature or another.

The crucial corollary: There can be no single large ordering principle, no master narrative that governs your experience of the Getty. In his museums in Atlanta and Barcelona, Meier uses the act of procession as such a principle. Your movement through space, intensely choreographed, becomes the story of the museum. At the Getty Center, Meier chooses not to focus your perception in any such dramatic manner. You're attracted this way and that without ever arriving at a place of centrality or rest. It's the opposite of an epiphany like Louis Kahn's perhaps rather self-conscious courtyard at the Salk Institute in La Jolla, California.

The second helpful analogy is to a hospital. That is, in fact, what the ignorant stranger will surely assume the Getty is, as seen from below on the freeway. Like a hospital, it's mostly white and sanitary. But there's more to the resemblance. The Getty is a fiction in the sense that even though it was all designed and built at once, it appears additive and accretive, as hospitals always are. The lack of any big formal organizing idea makes the Getty look as if it was built one wing after another, donor by donor, over a period of time. From many viewpoints it looks random, even confused.

Admittedly, this quality solves a couple of problems for Meier. For one thing, it saves the Getty from the danger of appearing to be a single overwhelming object. That fact raises an obvious question, and I posed it to Meier: Wouldn't the Getty have been better if several different architects, working within, say, a framework established by Meier, had designed its different parts over time, each one relating carefully to what was already built but each also expressing an individual direction—

Robert Campbell, FAIA, a contributing editor of ARCHITECTURAL RECORD, is the Pulitzer Prize–winning architecture critic at the Boston Globe.

wouldn't the Getty have gained variety and tension and surprise? He replied, "I might answer that question the same way if I hadn't been selected as the architect."

The accretive technique also solves a practical problem. During the design phase, the Getty's six separate institutions were still figuring out what they wanted to become. The additive design method allowed each part to rethink its needs independently of the others. They share a Meier design vocabulary, but they don't have to fit into a formal composition.

There's a third hospital parallel. It's the organizational idea of the horizontal sandwich of functions. Served and servant spaces tend to occupy horizontal layers, linked vertically by many elevators. A huge service basement, which the public visitor will never see, occupies nearly half the volume of the Getty complex. Here toil the Morlocks, so to speak, serving the Children of Light who flit through the galleries and other public realms. Sometimes there's a third still higher layer of offices, rather like the superstructure of a ship. And indeed there are some views from which the Getty looks like white decks and rigging atop a huge stone hull run aground in the hills. Those are ways of understanding the Getty as a whole. Let's look more closely at particular aspects.

First, the galleries. They're the soul of the Getty, the place you'll spend the most time, where you go to look at the great art (and it certainly is great). The skylit top-floor galleries, the ones that display the paintings (objects are lower down), are magnificent—as good as any of recent decades, on a par, say, with Kahn's at the Mellon at Yale. They are four-walled, roomlike spaces, as befits their traditional contents. They open to one another, but they're very different from the modernist flow of space, measured only by freestanding panels, that you find in Meier's High Museum in Atlanta, a place where the art can seem superfluous in the architectural collage. The Getty galleries are hip-ceilinged and lit from above in the manner of Sir John Soane's Dulwich Gallery, the model for so many museums. You hear endless stories about how Meier was often at loggerheads with the Getty staff and other consultants over these spaces. But however messy the process, the result is successful. The computer control of natural light is sophisticated, both as to color and brightness (a constant 22 footcandles), but the light isn't so heavily modulated that you forget there's a changing, moving sun up there somewhere: you can see blue sky through the operable louvers.

Walls in the various spaces are surfaced in different materials and textures: flat or corrugated linen, applied paint, or paint mixed integrally with the plaster. Each room displays the art of a particular era, and the wall colors often take their hue from a fashion of that era, or from a dominant painting in the space. It's an approach that risks a too-easy nostalgia, as in the Wedgwood blue walls of a gallery displaying 18th-century English art, but it generally works and the paintings have never looked better. Where the paint is integral, the wall surface achieves an amazing optical depth, reminiscent of the backdrops of portraits by the photographer Irving Penn: the paintings seem to drift against a background fog.

I liked the galleries here better than the similar, much-admired ones by Venturi, Scott Brown and Associates at the Sainsbury Wing of the National Gallery in London, where the light is a little too unvarying, and the monotone architecture, failing to assert itself sufficiently as a frame of space, leaves the paintings on the walls as isolated as slides in a lecture (an effect the media-maven Venturis probably like). The Getty hits the right balance: just enough architecture (oak detailing, changing shapes and colors) to articulate space and give the paintings a place in which to exist.

Next, the materials. Above a certain height, the Getty is made of the familiar Meier panels and painted pipe rails. They're a little off the usual pure white, but that makes no real difference. What is different is the travertine. Last spring I had a chance to visit the Mariotti stoneyard near Tivoli, Italy (just a few kilometers from Hadrian's Villa), source of the Getty's travertine. It was a huge job: two containers of stone every day for two years. The stone was split with enormous industrial guillotines to create the roughest possible surface. I guessed then that the split-face wouldn't work aesthetically. The surface is extremely irregular, as much as three inches deep from the outermost protuberance to the innermost recess. The scale seemed overwhelming, and the natural organic variation of the limestone surface seemed lost. But the Getty is so big that the roughness falls comfortably into place. No surface less bold would have succeeded in reading as texture.



SOMETIMES THE LIGHT IS SO TANGIBLE IT SEEMS TO BE A VOLUME INSIDE A SPACE, PUSHING OUT.

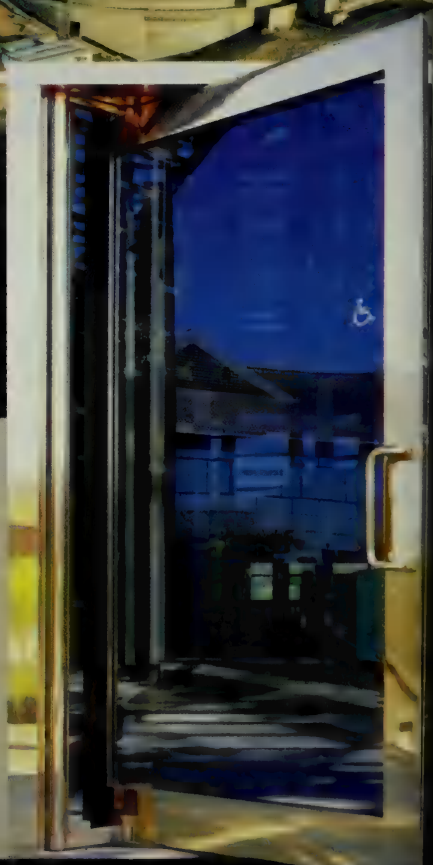
The Getty reminds me of Frank Lloyd Wright's Fallingwater (a building Meier has spoken of as a huge influence on his choice of career, although not, so far as I know, in connection with the Getty). The travertine is the same pinkish ocher color as the land around the Getty, and it seems to heave itself up out of the ground like a natural eruption, just as do Wright's stone piers. And then, in both buildings, you get a white, cubist, obviously man-made superstructure. You get the opposing yin and yang of architecture: cave and promontory, nature and geometry. At the Getty, the smooth metal and rough stone kiss like baby and grandpa. Meier doesn't allow himself to *(continued on page 197)*

From Day One at the Getty Center the Exterior Doors of Choice ...

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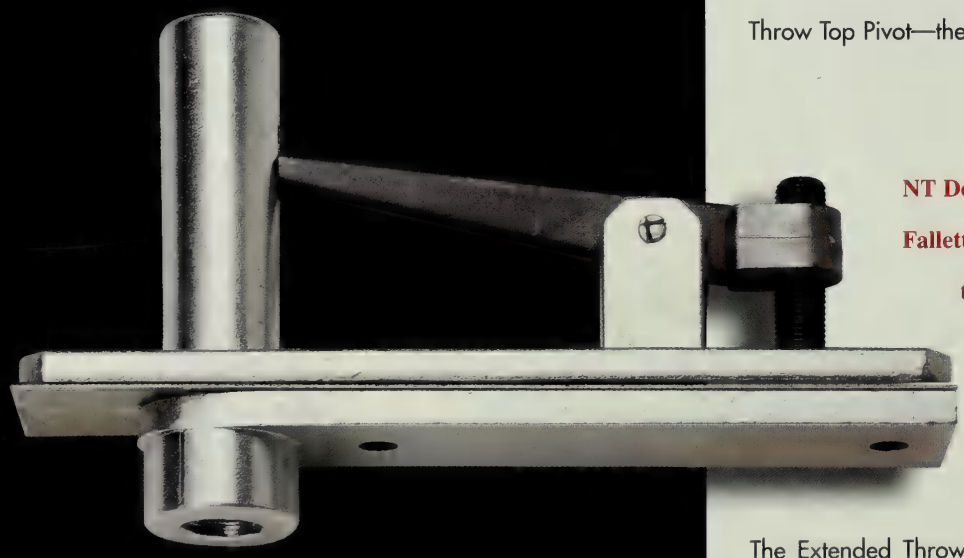
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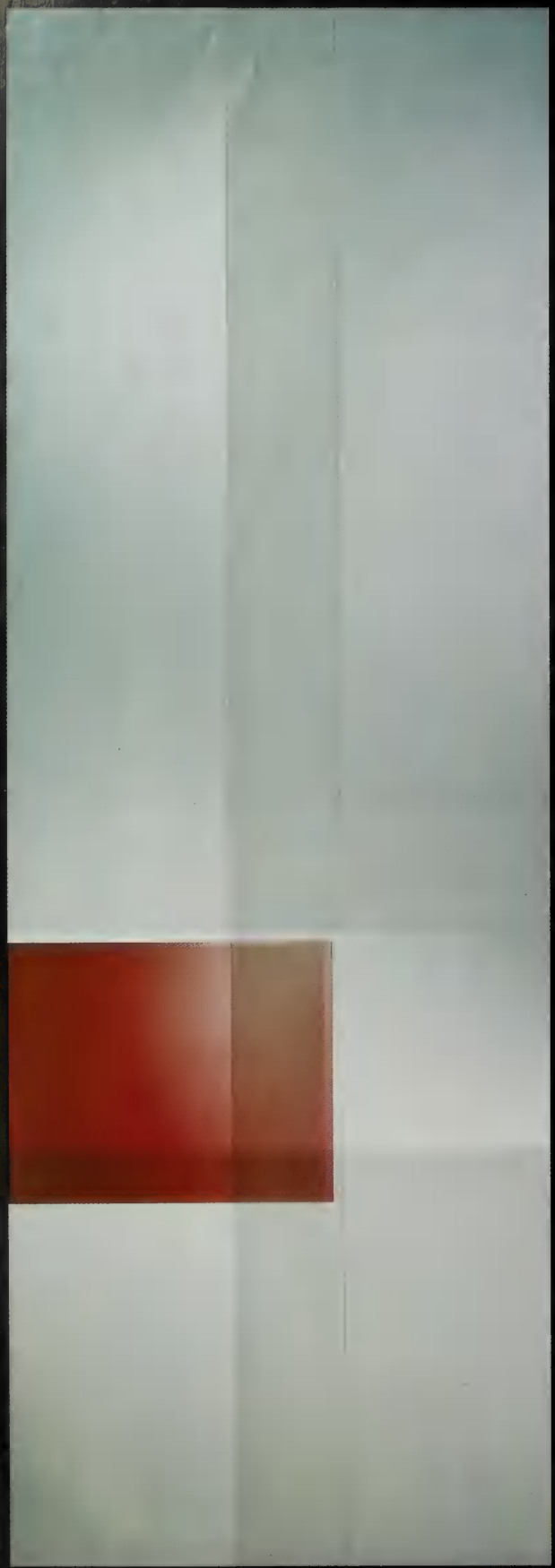


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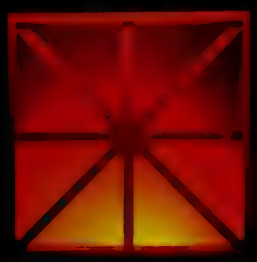
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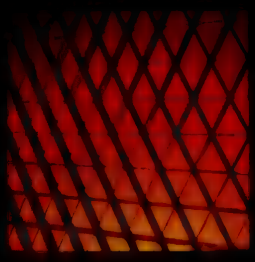
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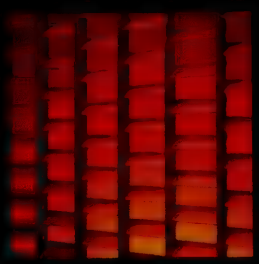


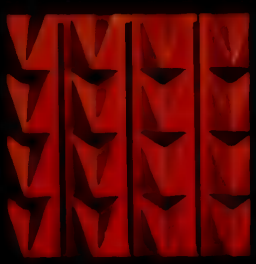
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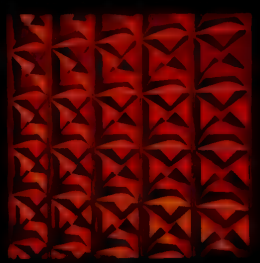


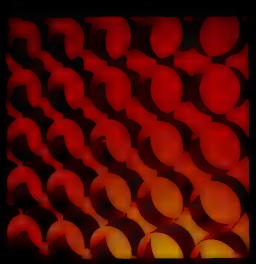
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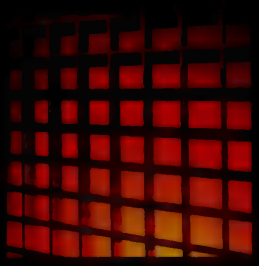












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by Wendy Moonan



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2

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3

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The residential rehabilitation business is huge, but architects are getting just a small slice of the pie. Sitting at the table are a range of hungry entrepreneurs and other professionals such as remodelers, interior designers, and contractors, all busy convincing the public that architects aren't needed for remodeling projects.

"Many architects do not accept smaller projects," warns a new glossy consumer's remodeling guide published by the National Association of the Remodeling Industry (NARI). In fact, the 88-page booklet, called "Master Plan for Professional Home Remodeling," is not architecture-friendly at all. Architects are not mentioned until page 16, and there only in a paragraph that reads: "In cases where your professional remodeler does not provide design services, you may wish to seek the assistance of a professionally trained architect." The NARI recommendation? "Your best bet may be to hire a design/build firm."

Almost 40 percent of homeowners plan some type of home improvements this year, according to a Fannie May survey. The National Association of Home Builders reports that the remodeling market in this country grew from $112.6 billion in 1995 to $118.6 billion in 1996. But architects' net billings for remodeling single-family projects was just $265 million in 1996, reports the American Institute of Architects. In comparison, architects billed $1.1 billion for new single-family homes that year.

What is the $118 billion being spent on? House additions, bathrooms, kitchens, great rooms, media rooms, attic bedrooms, and home offices. Who is remodeling? Baby boomers, of course. A 1996 Yankelovich study says the mean age for remodelers is 42.2 years, that 51 percent are male, 74 percent are married, and 12 percent are divorced, separated, or widowed. Some 69 percent work full- or part-time, 80 percent are white, and their average mean annual household income is $45,300. In the survey, 81 percent of the remodelers said they were "furnishing their home so that it is comfortable and easy to take care of."

Remodeling magazine reports that 80 percent of home remodeling is done by professionals, not by homeowners; busy consumers seem to prefer spending money—not time—on their houses. Some of the work is being done by national franchisers like ServiceMaster Residential Commercial Services (of Memphis), some by contractors, and some by architects. There's a lot of business to be done, if architects are interested.

Wendy Moonan is an editor-at-large of House & Garden *and a frequent contributor to* RECORD.

1 Fire Island House
Fire Island, New York

ROGER HIRSCH, DREW SOUZA, AND SUSAN FROSTEN GUTTED AN OLD BEACH HOUSE, THEN TURNED IT UPSIDE DOWN AND INSIDE OUT.

by Wendy Moonan

Project: *Fire Island House*
Fire Island, New York
Owners: *Roger Hirsch and Drew Souza*
Designers: *Roger Hirsch, AIA, Architect; Susan Frostén Architect; Drew Souza Designer*
Consultants: *Kugler Tillotson Associates—Suzan Tillotson, principal (lighting); Designscapes (landscape); Charles Southard Jr. (structural); Reed Karen and Glen Johnson (cabinetry); Art & Design Works of Oregon (metalwork on interior fixtures and furniture); Studio 40 (metalwork on dining table, beds, and balconies)*
General Contractor: *Vincenzo Pepe*

Project Statistics
Size: *1,600 sq ft (renovated), 1,400 sq ft (originally)*
Cost: *$178 per sq ft*
Design challenges: *Building on a car-free island with strict noise ordinances; executing a gut renovation on a 1950s beach bungalow that had been long neglected.*

New York City architect Roger Hirsch, AIA, gives new definition to the word "renovation." In 1993 he bought an abandoned 1950s beach house on a tree-filled, 60-by-160-ft lot on Fire Island, a sandy strip of land in Long Island's Great South Bay, and decided to turn it into a four-bedroom house for weekend entertaining. The house had a sad past. One previous owner had begun a renovation, then stopped after falling ill. The banks took back the house, and just left it—without plumbing or electricity.

Site constraints

"We had to design everything with the island in mind," says Hirsch, who designed the house with his former partner, architect Susan Frostén. "Building on a car-free island with pedestrian boardwalks forces you to transport equipment and materials via ferry and electric cart. Major building work can only be done in the winter. Noise codes forbid loud power tools on weekends. This added to the time and expense."

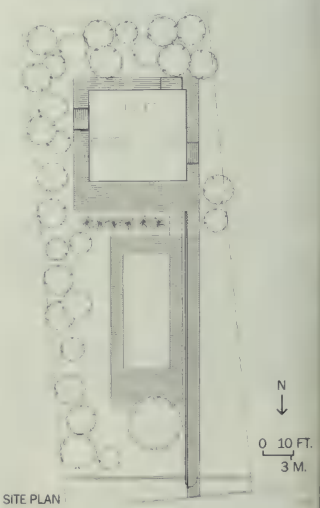
Hirsch loved the house for its leafy, private site—and for the "total challenge" it presented. "It was really like building a house from scratch," he says. First, he decided it was upside down. He didn't like having the kitchen, living room, and dining room on the second floor, above the bedrooms. He wanted the public areas to open onto the pool and deck "like a real beach house," and he wanted the bedrooms up, "so they would feel like treehouses."

Design approach

"We kept what we could, to save money and time. We reconfigured the entire house, peeled off the northern facade and substituted it with glass, added eight feet and a new pool," explains Hirsch. "I wanted you to experience the space, feel the texture of the floor on your bare feet, and see the trees, the stars when you look out the window," he adds. "This house is all about the tactile nature of the materials," adds Frostén. "The form was just one aspect of the design; the physicality and materiality were equally integral to the design."

Expanding the house

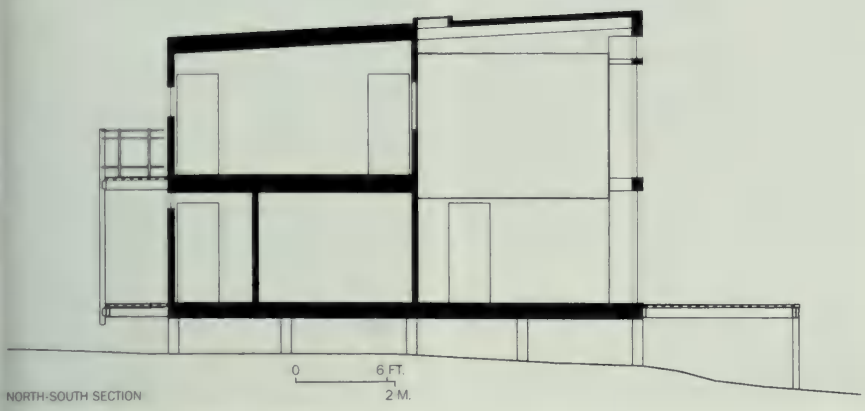
Hirsch dismantled the house, keeping only the roof and the foundation elevated on wood piles. By expanding the house on two sides, he was able to fit three small bedrooms and two bathrooms into the second floor and still have a double-height living room. A narrow skylight was installed in the roof so "the sun can streak into the living room, but in a very controlled way"—through the rafter beams. One second-floor bedroom has a window overlooking the



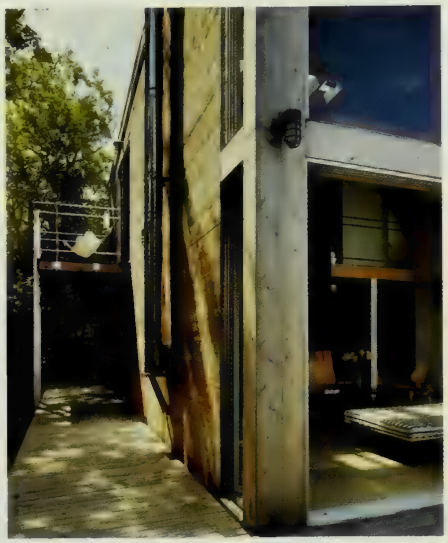
SITE PLAN



A new facade for the back of the house opens the rebuilt living spaces to a new pool and deck (below and right), eliminating most evidence of the neglected 1950s house (opposite bottom).



NORTH-SOUTH SECTION

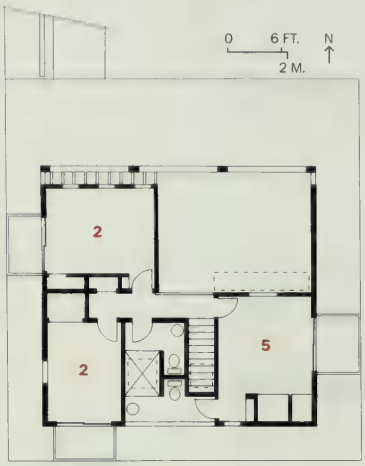




1. *Kitchen*
2. *Bedroom*
3. *Dining*
4. *Living*
5. *Master bedroom*

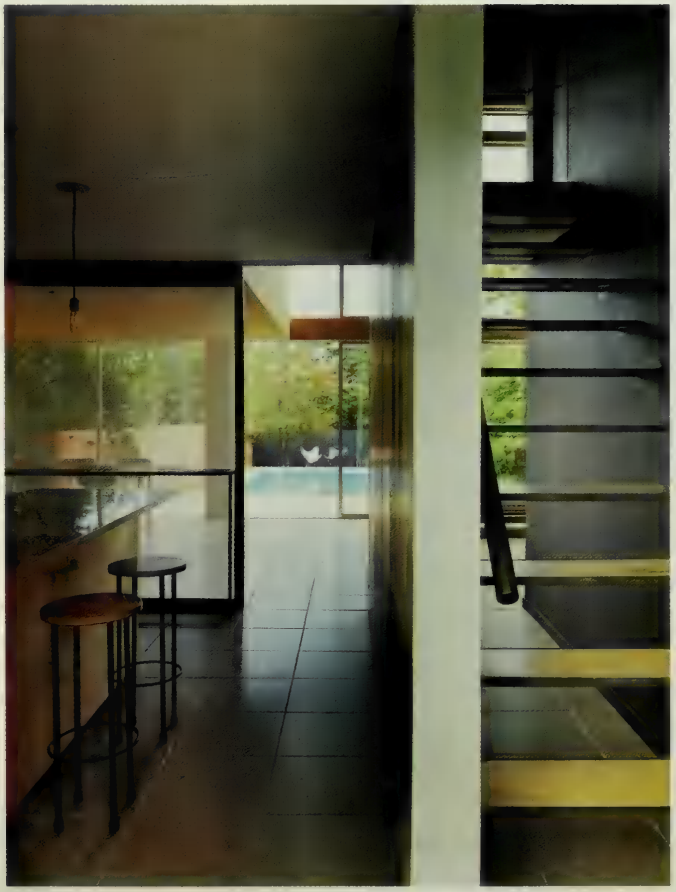


FIRST FLOOR



SECOND FLOOR





Before renovation, bedrooms were on the first floor of the house and kitchen, living, and dining rooms above. Hirsch and his partners reversed this order (plans, top), so the public rooms would have access to the outdoors. Now views are provided through the stair hall and kitchen (above) to the deck and pool area. A mural enlivens a kitchen wall (top right).

living room and the trees beyond. Another is tucked into a cube that is recessed from the glass facade and appears to float over the dining room.

On the first floor, the dining room is separated from the kitchen by a translucent theatrical scrim. An open stair with stringers hidden in the walls divides the ground floor into public areas (living room, dining room, and kitchen) and private spaces (bedroom/study and bath).

A narrow boardwalk surrounds the house, connecting it to the pool deck and providing access to the pool from all four sides.

Materials and colors

The architects' palette is neutral but offset by a few brightly colored volumes: the bedroom cube is a muted yellow, to accentuate its form, and the poolside wall is a soft, Barraganesque orange. Most materials are left natural, including gray cedar siding, maple floors, jute sisal bedroom rugs, French limestone living-room pavers, and one-ft-sq Vermont slate bathroom tiles.

While the forms seem simple, the design is compact and disciplined. To continue the treehouse theme, Hirsch added a small balcony to each of three sides of the house, making the bedrooms seem bigger and giving each its own private terrace. The glass facade has doors on both floors that slide open to increase air circulation. In order to have one generous shower on the second floor instead of two tiny ones, Hirsch built a large shower room that can be entered from bathrooms on either side. The shower has two sandblasted translucent glass doors with offset pivot hinges to allow for both access and privacy.

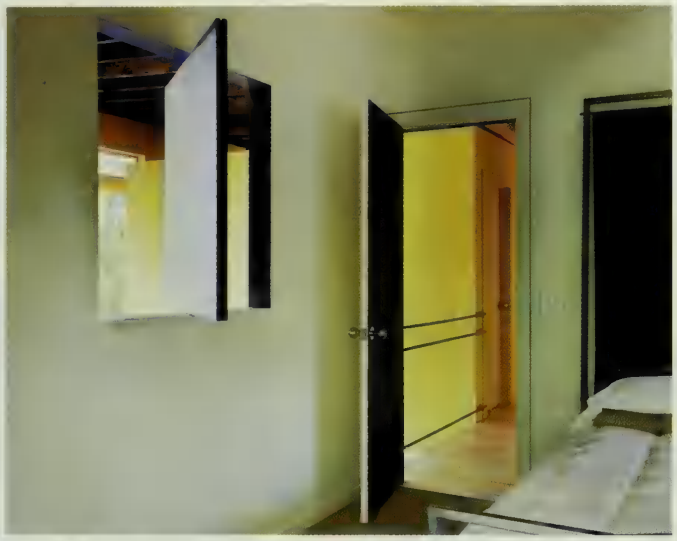
Apart from two molded plywood Eames lounge chairs and six New York City public school chairs in the dining room, all the furniture was designed for the space. Hirsch designed the maple dining table, which has eight small holes in the center that can accommodate candles or test-tube flower vases.

Hirsch's friend Drew Souza, a graphics and product designer, created a sofa with leather straps suspended, hammocklike, from its steel frame. Together, Hirsch, Souza, and Frostén designed the beds, coffee table, daybed, kitchen island, and cabinets.

Would Hirsch change anything? No, he says. "It came out as I envisioned it. But we thought it would be a renovation job, easier than doing something from scratch. In truth, it was a gut job." ■

Manufacturers' Sources
Skylights: *Velux-America, Inc.*
Exterior lights: *Stonco*
Living room ceiling lights: *Elliptipar*
Bathroom lights: *BEGA/US*





A bedroom (left) overlooks the living room. Extending the front of the house by two feet and the side by eight feet, the architects were able to carve out a two-story space for the living room (below).



2 Follows Residence Los Angeles, California

FERGUSON-ETTINGER ARCHITECTS ATTACHED A SERIES OF OUTDOOR ELEMENTS TO A BUNGALOW AFTER SECURING IT TO THE GROUND.

by Wendy Moonan

Project: *Follows Residence Los Angeles, California*
Architect: *Ferguson-Ettinger Architects—Pamela Ferguson, Brett Ettinger, principals*
Engineers: *B.W. Smith Structural Engineers (structural); Kurily Szymanski Tchirkow (structural); Parmelee-Schick and Associates (soils)*
General Contractor: *R.A.C. Construction*

Project Statistics
Size: *520 sq ft (addition), 1,644 sq ft (existing)*
Cost: *$78 per sq ft*
Design challenges: *Security concerns and a tight budget, much of which had to be spent on the concrete caissons.*

Manufacturers' Sources
Transparent oil finish: *Penofin-Performance Coatings*
Exterior lighting: *Guth, B.K.*
Connectors: *Simpson Strong-Tie Co.*
Cantilevered pots: *Deroma*

When the Northridge earthquake hit Los Angeles in 1993, it damaged not only a small 1910 Craftsman-style cottage in the Silverlake district but also the psyche of its owners, an actress and her husband, a film lighting technician. The couple weren't sure they wanted to live with their two children atop a seismic time bomb.

Neighborhood context

Not that they didn't love Silverlake, a middle-class area long favored by film people. "It first bloomed in the 1920s and 1930s as a residential neighborhood for the Hollywood crowd," explains their architect, Brett Ettinger of Ferguson-Ettinger Architects, a four-year-old, Santa Barbara–based team. In the 1940s and 1950s, Silverlake became the site of houses designed by Rudolf Schindler, Richard Neutra, John Lautner, Allyn E. Morris, and other mid-century architectural legends.

"After the earthquake, we had to convince our clients that we could design something that would make them feel safe both physically and psychologically before they would reinvest in the property," says Ettinger. "We decided we'd try to make something architectural out of something modest and vernacular."

First, they secured the house by sinking three 30-ft concrete caissons into the rock to repin it. After $40,000 worth of concrete foundation work, "we decided to leave the rest of the house alone," says Ettinger's partner, Pamela Ferguson, who liked the original shiplap siding and bungalow charm. "We added appendages instead." A new 520-sq-ft redwood deck gives the dark, confined house some breathing space. "We wanted to take advantage of the California environment and make a place to sit outside."

"The deck is like the prow of a ship," she explains. "From it the owners can see the Hollywood sign." The deck is supported by massive supports, 8-by-14-in. redwood beams, which are exposed to show their size and strength.

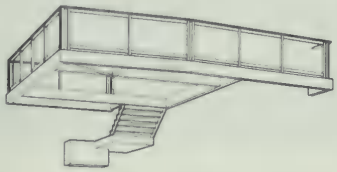
Defensible design

The 1,644-sq-ft house is only two blocks from the site of the recent L.A. riots. "Our strategy was to make it a refuge off the street," Ettinger says. The steep facade between the street and house is now a collage. "We wanted to break down the scale of the vertical wall," Ferguson says, "so we put the horizontal landing in the steps. Then we reoriented the stairs so they wouldn't be open to the street. It gives you a feeling of safety; there is no open invitation to climb the stairs."

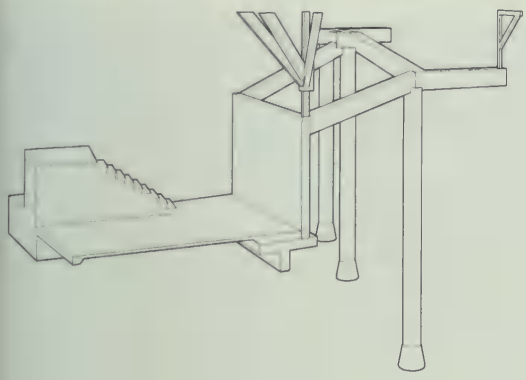
"From the floorline of the house down to the bottom of the stairs is almost a building in itself," Ettinger adds. "We wanted the house to be gritty at the ground level, so we used blackened steel-rails, redwood boards, graffiti-proof cement, and white stucco." The result is a place that feels secure—against both human and seismic intrusions—without looking like a fortress. ■

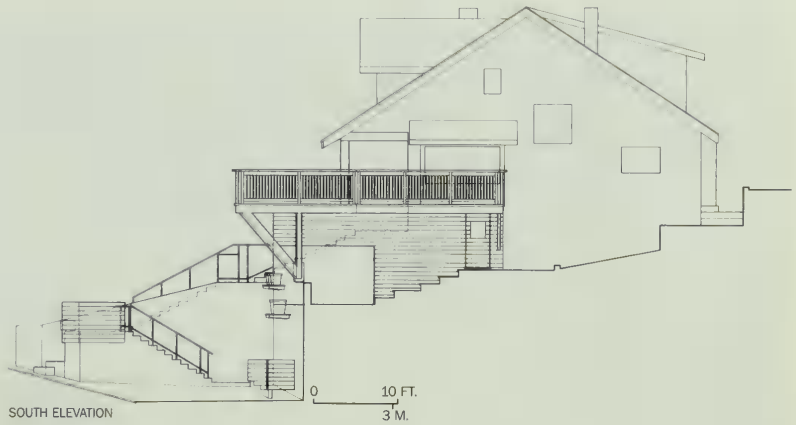






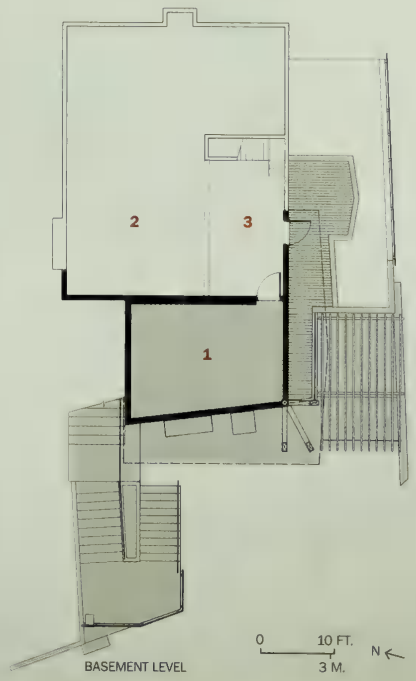




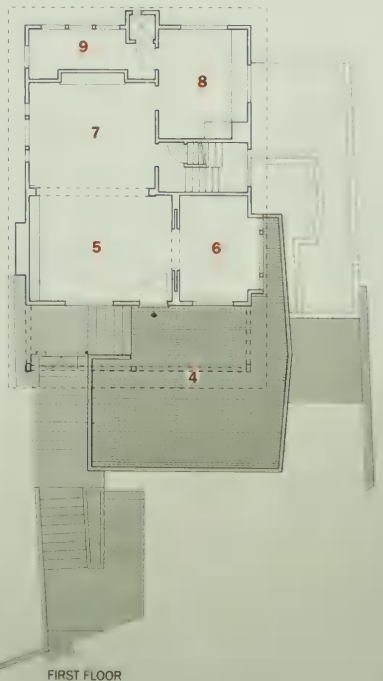


SOUTH ELEVATION

1. *Storage*
2. *Crawl space*
3. *Basement*
4. *Deck*
5. *Living*
6. *Den*
7. *Dining*
8. *Kitchen*
9. *Bath*



BASEMENT LEVEL



FIRST FLOOR

Concrete caissons were used to repin the house to its steep hillside (axonometric drawing, above) after it was damaged in the 1993 earthquake (opposite). A deck and small insertions create a new entry sequence.

3 Hobgood House Charlotte, North Carolina

USING NEW MATERIALS BUT INSPIRED BY OLD FORMS, KENNETH HOBGOOD RENOVATED AND ADDED TO A STATELY OLD HOME.

by Ken Friedlein

Project: *Hobgood House Charlotte, North Carolina*
Architect: *Kenneth E. Hobgood, Architect—Kenneth E. Hobgood, AIA, project designer; Mark Reyer, Chadwick Robertson, Roger Cannon, Alan Bolzan, design team*
Engineer: *Morrison and Sullivan (structural)*
Consultants: *Jay Smith (landscape); Shepherd Electric Co—Robert Jordan (lighting)*
General Contractor: *Dorset Construction*

Project Statistics
Size: *880 sq ft (new), 3,950 sq ft (renovated)*
Cost: *$792,000 ($164 per sq ft)*
Design challenges: *Zoning setbacks, relating the new addition to an old house while using a Modern design vocabulary, and accommodating a multifaceted program.*

Steel and glass is a language hardly spoken in Myers Park, a tranquil, oak-shaded neighborhood in Charlotte, North Carolina, where the houses tend to be stately versions of one period style or another. So when architect Kenneth Hobgood, AIA, added a white metallic pavilion onto the back of a hip-roofed, stucco house here, he was introducing a foreign element. Part of an extensive remodeling project, the addition establishes its identity by contrasting the old with something unmistakably new.

Located on a prominent corner, the property had been little changed since it was built in 1914. But in 1993, Hobgood's brother, Thomas, a custom furniture maker, bought the house and acted on a long-held wish. "I've always wanted to have Kenneth design something for me," Thomas Hobgood says, recalling that he summoned his brother to Charlotte as the purchase of the house was pending. "Can you do something with it?" he asked.

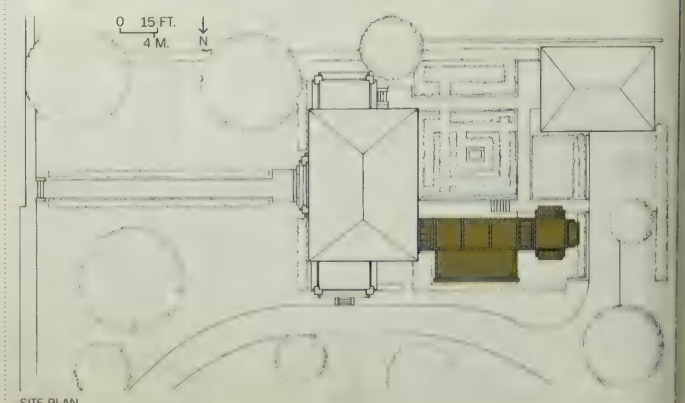
Old elements inspire the new

A deteriorating masonry-and-timber pergola off the rear of the house and the remains of an adjacent formal garden served as the genesis for the new scheme—to replace the pergola and its repetitive framing with a raised pavilion and create a topiary garden in the yard.

Designing the new pavilion by merely replicating the pergola form, though, would not have provided enough space to accommodate all of the functions envisioned for the addition—an up-to-date kitchen, a sitting area, and a breakfast room.

Hobgood's solution was to configure the kitchen as a galley contained in a supplemental, solid volume along the exposed street side of the addition. That left the sitting room open on the garden side while providing privacy from the street. The form came from repeating 11-ft-4-in. steel-frame cubes, three of which combine to make the sitting area. At the end, the breakfast room continues the line of cubes beyond the protection of the adjacent kitchen, making a glassy





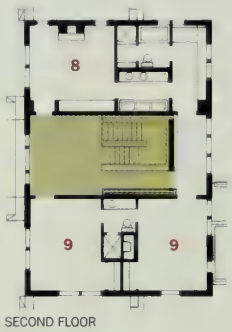
SITE PLAN

Ken Friedlein is a journalist and intern architect with Dixon Weinstein Architects in Chapel Hill, North Carolina.



The 880-sq-ft addition looks onto a new garden that is still maturing (left). The breakfast room at the end of the addition (below) enjoys views on three sides, while the new kitchen on the north side has a solid wall that provides privacy from the nearby street. The steel framing of the addition recalls the repetitive form of a masonry-and-timber pergola that was once on the site.

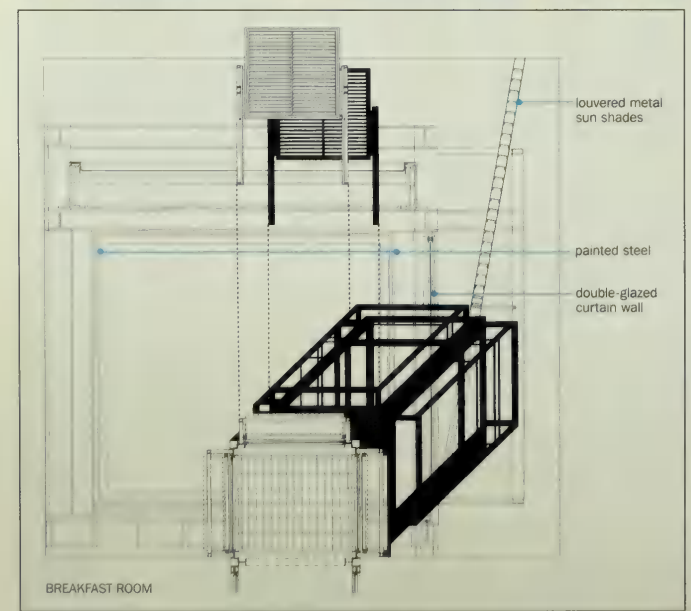




1. *Stair hall*
2. *Living*
3. *Dining*
4. *Sitting*
5. *Kitchen*
6. *Breakfast*
7. *Guest*
8. *Master bedroom*
9. *Bedroom*

A new stair hall with 20-ft-high maple-paneled walls enlivens the old house (opposite top left). A new kitchen and sitting room are in the addition (opposite top right and bottom).





room open to the garden and street on all three of its exterior exposures. Mechanical louvered screens riding in angled, exterior tracks can be lowered to provide varying degrees of privacy, or raised to allow full views. In any position, they provide high-tech punctuation marking the end of the extension.

Renovating the existing house

The project also involved a thorough renovation of the existing house—leaving the front with its original arched, centered entry and twin flanking porches, but redoing the stucco finish, replacing windows and floors throughout the interior, and updating major spaces such as the master bedroom and bath. Part of the detached two-car garage was converted to guest quarters.

To open up the front of the house, Hobgood removed the existing cramped stairs and created an airy stair hall. Though less evident to passersby, the stair hall is as significant an installation inside as the garden pavilion is outside.

Bringing the language of the steel-and-glass pavilion indoors, the architect designed the staircase as a steel construction with open risers and a carefully detailed metal railing. "We wanted something inside the house to tie back to the addition," says Hobgood.

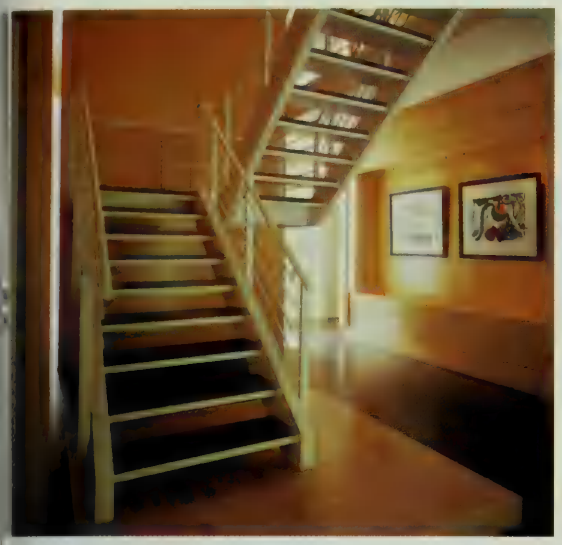
That the new construction would evolve as a sharply contrasting piece rather than a continuation or evolution of the existing house was not surprising, given the architect's preference for clean, Modernist solutions. Formerly a senior designer for O'Brien/Atkins Architects, Hobgood formed his own firm in 1993 with O'Brien/Atkins colleague Roger Cannon. (Cannon has since left and opened his own firm.)

Respectful approach

Hobgood acknowledges that "some people may take it as a jarring addition" but says his approach sprang from a respectful attitude. "The house had that nice front elevation and those porches. It was complete, really, and to try to add to it in that style wouldn't do. We wanted to add something simple that made the house and the addition two different things, so they would talk to each other."

One of the challenges that the addition had to overcome was the thermal swings associated with exposed glassy volumes. The owner says the combination of passive shading devices and beefed-up air handling has achieved comfortable heating and cooling levels. ■

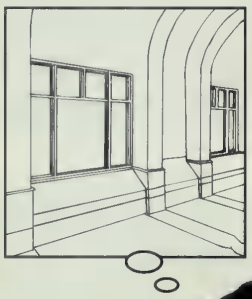
Manufacturers' Sources
Steel frame: *North Carolina Steel*
Steel window wall: *Hope's Architectural Products Inc.*
MR16 downlights: *Reggiani; Halo*
Exterior wall lamps: *BEGA/US*

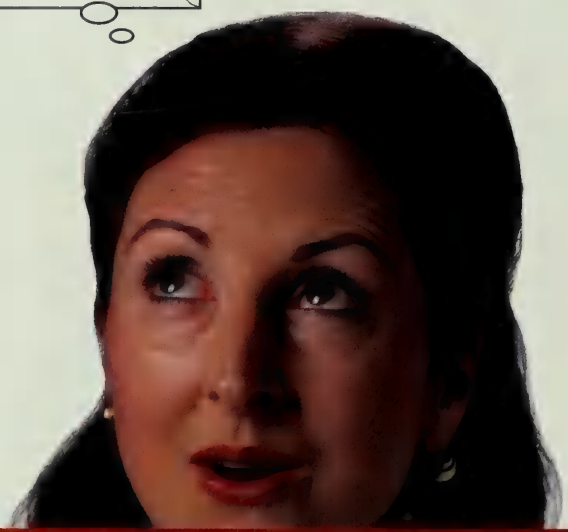





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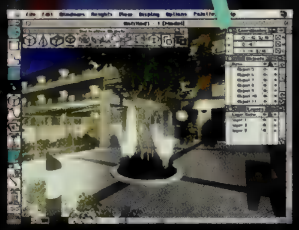
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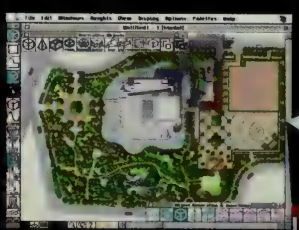


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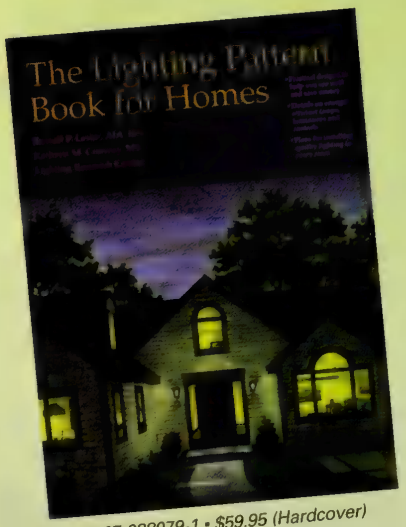
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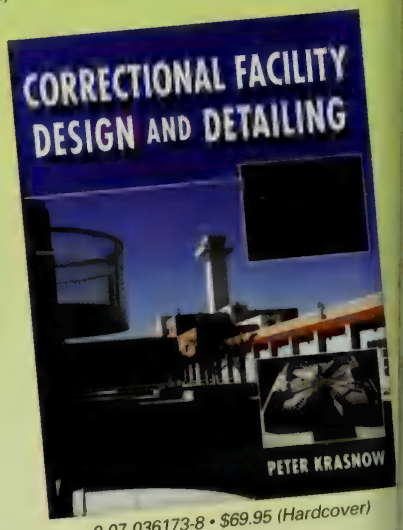
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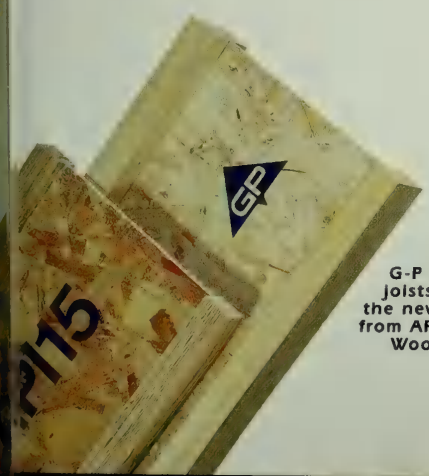


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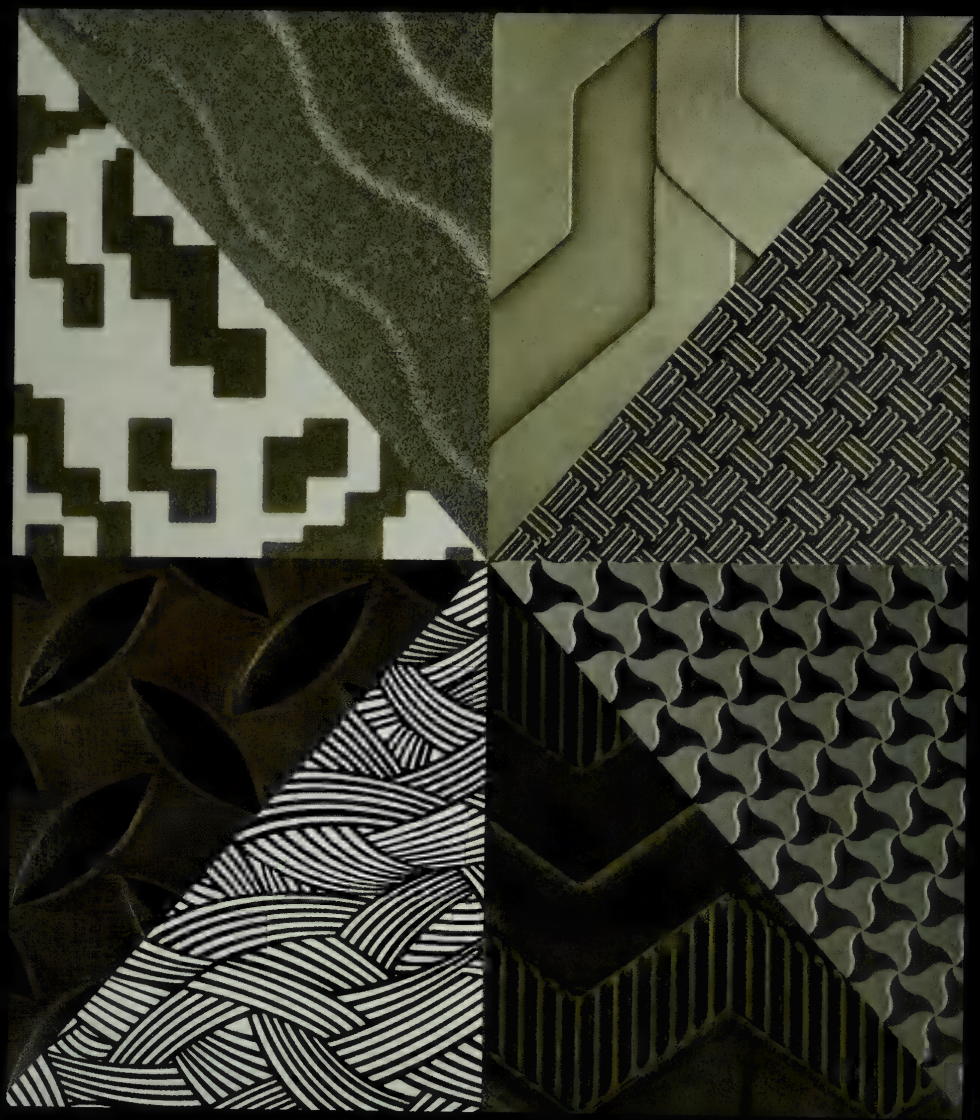
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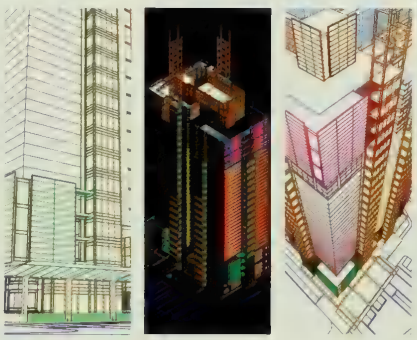
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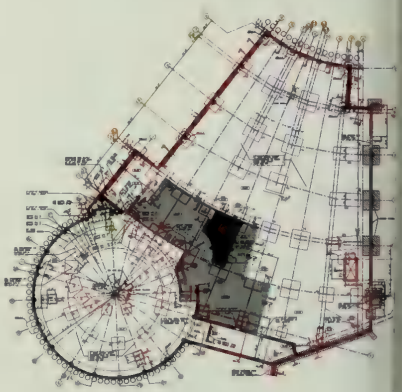


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The Architecture of Cyberspace

SEVERAL ARCHITECTS ARE CHANGING THE LOOK OF THE WORLD WIDE WEB, AND CREATING METHODS THAT OPEN NEW OPPORTUNITIES FOR THE FUTURE OF PRACTICE.

by B. J. Novitski

No sooner had architects discovered that the graphically appealing World Wide Web was of limited value for marketing purposes, than practitioners and university researchers began exploring ways to make it useful in more practical ways. The Web is not simply a medium for viewing pretty pictures; it is becoming a serious tool for collaboration between design professionals, their clients, and builders.

Traditional design processes cannot always be transferred wholesale into new media, however. Computer technology makes it easy to accumulate vast amounts of information, so new methods for managing and retrieving it must be invented. Technologies that support collaboration between designers who live in different hemispheres and/or who do not know one another can sometimes emphasize cross-cultural misunderstandings that would not be an issue in traditional business. So, as they seek ways to utilize new media, technological explorers are also devising methods to solve the new problems they encounter.

Web-based design and construction data

NBBJ, the large Seattle architecture firm, has been working with digital technology for years to present project visualizations to clients. Now, with the convergence of the Internet and interactive three-dimensional software, they are exploring ways to extend this capability. For the Seattle-based Virginia Mason Research Center, for example, NBBJ has set up a private Web site that will enable clients and subcontractors to "tour" the proposed building. The clients will study functional and experiential aspects of the space, while the fabricators will retrieve dimensional data about building components.

B. J. Novitski is a freelance writer specializing in architectural technology, practice, and education. She can be reached at bjn@efn.org.

Continuing Education *This month's installment of the ARCHITECTURAL RECORD/AIA Continuing Education Series focuses on electronic design collaboration. Use the following learning objectives to focus your study. After reading the article, complete the questions (page 190) and check your answers (page 192). AIA members may fill out the self-report form in this issue (page 192) and send it in for two AIA Learning Units.*

–Mark Scher, AIA Director Professional Education Products and Services

Learning Objectives *After reading this article, you should be able to:*

1. *Explain at least three challenges and opportunities offered by electronic technologies for diverse and long-distance design projects.*
2. *List two ideas about the electronic design process and project information management that can contribute to project success.*
3. *Contrast the utility of videoconferencing and E-mail as international communication vehicles.*



Elements of Planet 9's Virtual-TOKYO offer clickable Web links.

The client group for this project is itself very sophisticated technically. The staff scientists have high-powered workstations for "walking through" molecular structures in their own research. Thus, they have both the necessary equipment and an appreciation of the importance of visualization. NBBJ staff designer Dace Campbell (dcampbell@nbbj.com), who has worked on several virtual-reality projects at the University of Washington, has been developing the Virginia Mason Web site to study the function and construction of staircases in the research facility. He rendered a three-dimensional model with the highly realistic Lightscape software to give the clients a clearer picture of what it would be like to navigate the stair and surrounding lobby.

When the clients first toured the digital space, Amy Baker, an NBBJ interior designer, was on hand with material samples to give the colors in the image a greater sense of realism. (The best communications often occur through the proper balance of modern and traditional media.) As the project develops, the clients will be able to "tour" updates on the Web from their own offices by invoking the model built in Virtual Reality Modeling Language (VRML).

Arguably more important than the design visualization is the role the Web site will play in communicating construction information to the subcontractor who will ultimately fabricate the stair. Project principal Richard Dallam (rdallam@nbbj.com) believes that concentrating technology on the construction-documents phase could bring about the greatest benefits in quality along with more savings in cost and time. If the fabricator can get precise dimensional data directly from the model and bypass all the conventional intermediary steps in shop-drawing reviews, the chances of error are fewer. Virginia Mason often negotiates contracts in order for the contractor to get on board early, so the architects can design details around the systems the builders like to use.

Thus, working directly with the subcontractor results in fewer

problems and tends to limit rather than jeopardize the architect's liability. Furthermore, because the model is accessible from the Internet, Dallam has more choice when selecting fabricators. He can look to other states, where labor costs are lower, because he does not need to meet the builder face to face to explain design details. Architect and fabricator can discuss a project by telephone while touring the same 3D model on the Web. Dallam expects the Virginia Mason staircase design and documentation to be virtually paperless.

In other projects, he and Campbell have experimented with using a 3D Web-based model as an interface to a collection of 2D drawings. Sectional slices are preset within the model; the user clicks on a section marker to call up the pertinent plan or section.

One challenge they foresee is in making this Web site appropriate for different user groups. While clients will be more interested in the Lightscape-rendered models, the contractors will have a greater need for clear and precise construction documents.

Another challenge emerges from the opportunity to collaborate with clients from other cultures. Dallam cites a recent example with an Asian client group, which had a stronger sense of hierarchy than a comparable Western group might have. Because the group's most senior member was unwilling to interact directly with the walkthrough model, the junior members were reluctant to try it. So the interactive version of the design proposals went unseen. Though he does not claim to have solved the problems yet, Dallam says, "Learning how to deal with differences in cultural conventions will be absolutely key to making these technologies effective."

Managing an ocean of information

Another major challenge facing architects and engineers who use the Web as a medium for collaboration is management of the huge quantities of material they generate. Any design process produces a formidable amount of sketches, photographs, drawings, memos, schedules, calculations, and so on. These elements can be stored more effectively in an electronic format, but the amount of information is no less voluminous. Tracking all this material and making it easily retrievable is crucial if designers are going to make the technology efficient.

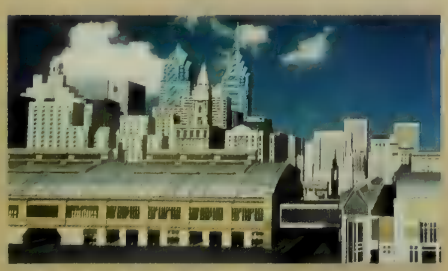
This problem and others in the area of collaborative design have been the focus of engineer and Stanford professor Renate Fruchter. For several years, she and her colleagues have been developing software and design methods that will enable multidisciplinary, geographically distributed design teams to work on a shared design model and use the Web for collaboration and communication. Fruchter has established, for example, a change-notification system that alerts each team member to any design changes by others that might have some consequences on the member's own work. She has her engineering students—who work in teams with architecture students at the University of California, Berkeley—set up a project Web site divided into shared and private workspaces. Whenever a student wants to present a drawing, for example, to the larger team, he or she establishes a link from the public space to the new drawing. With a system of passwords and permissions, different members of the team have access to different kinds of data. Fruchter notes: "The whole workspace becomes like a living organism that grows with the project."

Fruchter and her students use the Internet and Web tools as the

VISITS TO VIRTUAL CITIES

A new specialty service gives technology-savvy architects a field of practice that was unheard of 10 years ago. Architects David Colleen, of Planet 9, San Francisco, and Mike Rosen, of Mike Rosen and Associates, Architects, Philadelphia, have committed their firms to the modeling of cities. They create 3D models of buildings, streets, and other structures, and render them realistically with "textures" taken from digitized photographs of the real buildings. With fast enough hardware, Web users can "navigate" through one of these models and experience the city as if they were actually walking, driving, or flying through it.

Colleen and his colleagues have modeled approximately 15 cities, including Austin, San Francisco, Tokyo, New York, and San Diego, which can be found on the firm's Web site at <http://www.planet9.com/>. To begin a project, Colleen sends a staff photographer to take up to 2,000 photographs of the city. Back home, the staff creates simple massing models, onto which the photographic imagery is applied. They work with the Virtual Reality Modeling Language (VRML) so that models on the Web may be navigated by any user with the proper VRML plug-in. Colleen's staff adds detail incrementally as it becomes available. Often, city planning departments will contribute data in exchange for free use of the resulting database.

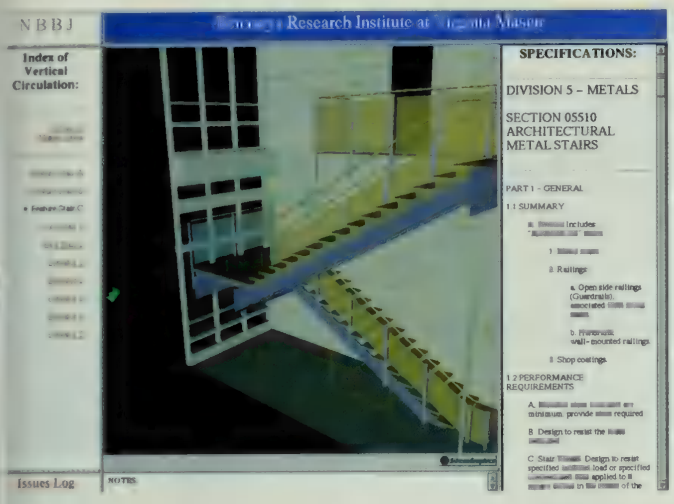


A 3D, Internet-based model of Philadelphia is now under development. The navigable model will contain realistic cityscapes as well as the city's precisely mapped engineering infrastructure.

Architecture firms may license a model and insert their own proposed building for design and sightline studies, for example. The model of San Francisco is so complete and precise that it is accepted by local authorities for use in environmental impact reports. The models are also licensed by tourism promoters as an interface to information for visitors. For example, Mardi Gras Productions uses the VRML model of New Orleans to provide data on local attractions. A visitor can navigate through the city, click on a restaurant, and call up that restaurant's Web page, which might include hours, menus, and so on. Some city models are being used as an index for real-estate listings. Facilities departments of some large companies are using them to manage leasing and space planning.

ModelCity Philadelphia takes the concept one step further. Besides the visible built environment, the model includes the city's hidden, engineered infrastructure. Built by Bentley Systems with their new ModelServer Publisher software, the navigable model is also a link to a massive yet integrated database of street trees, other landscape elements, and overhead and underground utilities. Architects will not only be able to place proposed buildings in the site for client and public evaluation, they and their consultants will have access to the city's entire infrastructure. Laypeople will be able to tour the city on the Internet in preparation, for example, for a real visit to Philadelphia. The Web site's location is <http://www.bentley.com/modelcity/>.

Mike Rosen is now leading the ongoing development of the model, which is expected to be unveiled at the AIA conference in Philadelphia in 2000. *B.J.N.*





Seattle's NBBJ is experimenting with 3D design and construction documents on an extranet. Clients and contractors can view the design of a stair in a Lightscape-rendered image (below). Another model view associates specifications data (left); clicking on individual stair elements brings up further information (right).

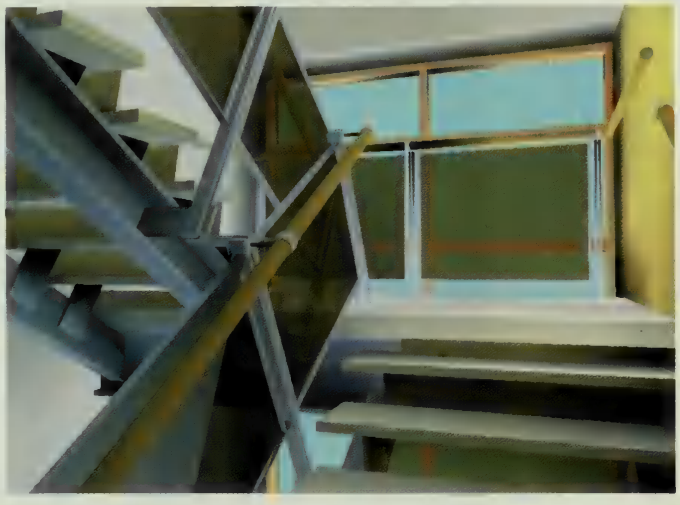
indexing system to keep track of all the drawings, data, change notifications, E-mail correspondences, and so on. They have programmed scripts that launch AutoCAD within the Web browser, so a user can move seamlessly from perusing the database to working on a drawing. In a recent project, a VRML model was the central organizing mechanism for finding information. The user was able to click on a picture hanging in a "virtual gallery" and get transferred to a Web page corresponding to that icon. As an upcoming feature, clicking on a structural member will bring up a page of related structural calculations. And, of course, users can navigate the VRML model to evaluate the space visually.

An important reason for maintaining and saving this vast amount of design information is that it will be useful during construction and afterward for facilities management purposes. But how to retrieve pertinent data for particular uses? Fruchter has developed a system for creating what she calls a "cyberarchive." A user can pose a query to the system for information selected by discipline, level of detail, and phase of design. The result of the query is not only a collection of the requested data; it is an automatically created, customized Web site assembling all this data. Even users who don't know how to set up Web pages can instantly create a site that is specific to their interests. Fruchter says: "It's like having a secretary. You can ask for 'all the information on architectural details' and the system will collect it, wherever it is." Fruchter says she hopes the software needed to make all this work will eventually be made available to the public. For more information, see her course Web site at <http://www leland.stanford.edu/group/CIFE/ce222/index.htm> or send E-mail to fruchter@ce.stanford.edu.

Design collaborations

For the past several years, professors, students, and researchers at the Massachusetts Institute of Technology (MIT) have been grappling with the technical and social issues of collaborative design. Led by the School of Architecture's dean, William Mitchell, MIT's Design Studio of the Future has been conducting design projects with schools all over the world. This interdisciplinary studio, run in conjunction with MIT's School of Engineering and found at <http://alberti.mit.edu/dsof/>, is supported by a state-of-the-art collection of computing and videoconferencing equipment. More importantly, the studio has become an international "aggregate of expertise," working to understand and solve the challenges of electronically supported collaboration.

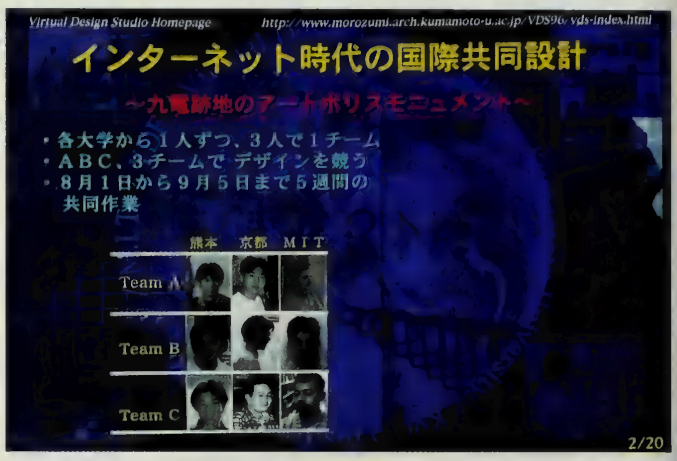
In the summer of 1996, three MIT graduate students teamed up



with six Japanese architecture students, three each from Kumamoto University and the Kyoto Institute of Technology. They divided into three teams, with one individual from each school represented on a team, to work on a structure for the Kumamoto ArtPolis '96 International Architectural Exhibition. A primary goal of the project was to explore the nature of communications between design partners separated by space, time, language, and culture. Each team established a Web site for posting images, drawings, text, and other digital data. They also shared ideas through videoconferencing; at prescheduled times they would hold conversations where they could see and get to know each other while discussing design ideas. Spoken-language difficulties eventually made this form of communication less common than typed E-mail. The students also shared ideas through sketches on electronic whiteboards. All these technologies were used during the final review presented to distinguished jurors from both the U.S. and Japan.

The teams were asked to designate specific roles for each participant: a Web master to maintain the team's Web page, a minutes taker to record discussions, and a schedule coordinator to determine meeting times. "Although these roles seemed time-consuming and mundane," says Mitchell, "they were important in establishing a common understanding of the development of the design as well as in the making of a coherent presentation to critics." From there, the teams diverged in process, each developing its own modes of communication. One team divided the





At MIT's Design Studio of the Future, students prepare Web sites to share ideas (right) and hold videoconference review sessions (left).

design concept into parts and delegated a part to each individual. Another team used a relay approach, whereby the entire project was passed successively from one member to the next. Ultimate success in design depended more on a student team's consensus about which process to use than on the particular process chosen.

The students discovered frustrations in communicating electronically that would not have been an issue if they were working in the same physical space. Because of the great difference in time zones, real-time videoconferencing was often not available. They came to rely far more on E-mail messages. They quickly realized they needed a system for acknowledging whether a message had been received, a formality that would not have been necessary in face-to-face discussions.

Over time, the students developed their own studio culture. To overcome linguistic differences, for example, and the lack of body language in text-based communications, the students developed sets of keywords that were abstractions of the more subtle and complex design ideas that emerged from the project. Terms like "rural reflections," "crickets," "beacon," and "whirlwind" became an invented shorthand to designate larger design concepts. The social bond reinforced by this understood vocabulary contributed to the success of the design teams.

Mitchell expects that the higher bandwidth and computing power that will be available in the future will greatly increase the interest of architects in this type of collaboration. "We'll see an 'internationalization' of design practice," he predicts, "a context in which services can be exported with increasing ease. It will become very common for geographically distributed design teams to work together." In anticipation of that day, his goal is to give his students the practical, hands-on experience of working in an environment that explores technical and social issues.

Beyond the building

Other issues about the future of the profession are the focus of architect and visionary Peter Anders. He and his students at the New Jersey Institute of Technology and, more recently, at the University of Michigan have been studying the existing appearance of cyberspace and the potential for turning it into a design service opportunity for professionals. In RECORD's October 1996 issue [pages 48–51], he discussed the multi-user domains first found in on-line games as primitive precursors to graphically richer, architect-designed Web-based "spaces" we can look forward to working with in the future.

Imaginary spaces form powerful images in our minds, he argues, citing the "memory palaces" used by orators to memorize and recall long passages of text before books were common. Each "room" in their mental palace brought forth the memorized material. The strong connection between mind, memory, and architectural imagery can be exploited by those who design the "structure" of the increasingly vast amount of information we'll need to deal with in the future. And who better to do this work than those trained in architectural design?

Now that tools for designing three-dimensional Web sites are readily available, Anders claims, any architect can be doing this kind of design work today. For example, any new building could include an accompanying database designed to organize the client's corporate or institutional information. Anders calls these auxiliary designs "cybrids": they have no physical manifestation, yet they may visually resemble the actual building. From home, telecommuters could navigate a cybrid to find their filing cabinet at work; geographically remote consultants could "meet" in a conference room without having to travel to the same city.

HIGHER BANDWIDTH WILL FURTHER INTERNATIONALIZE PRACTICE.

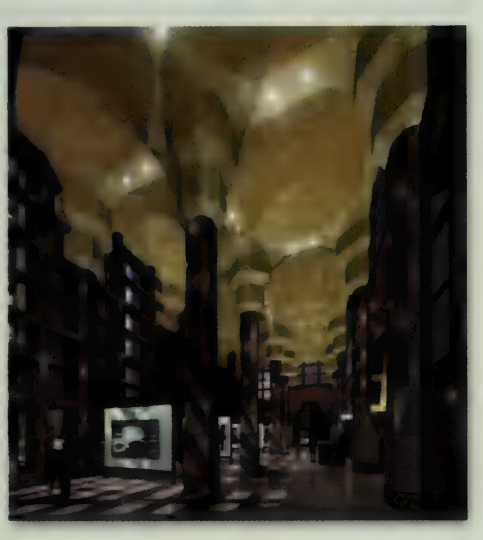
"It's a way of achieving 'green architecture,'" Anders says, "a building with the least impact on the land. If a client knows they can supplant a lot of their buildings' functions with a cybrid equivalent, this becomes pretty important economically." And by mimicking the imagery of the real building, architects can draw on the power of memory palaces to help users find and remember the information they need. "This goes way beyond architecture as something that just keeps the weather out," Anders concludes. "We're learning that architectural space is a medium and it's the way we relate to a lot of complex information."

So far there are few practitioners actively designing the architecture of cyberspace. But like the Web itself, their number will quickly grow. It's an uncharted path, and architectural explorers are anticipating some of the pitfalls. As a result, the rest may be able to travel more safely and look for the tremendous opportunities available in expanded services and improved design. ■

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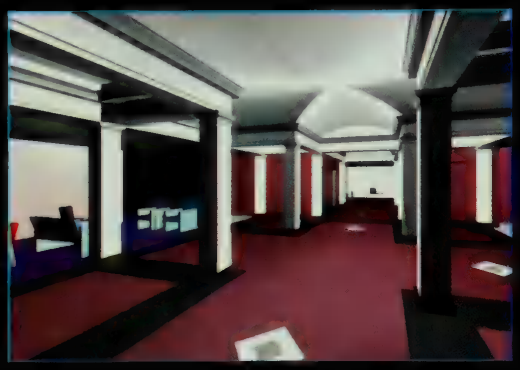
CIRCLE 51 ON INQUIRY CARD

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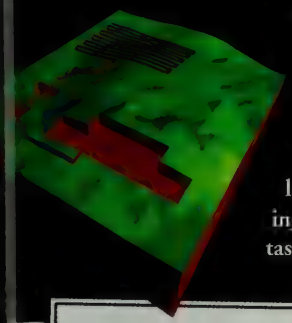
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CIRCLE 57 ON INQUIRY CARD

LIGHTING...



The latest buzz in the lighting industry is about all the research being done to prove that productivity can be improved by providing workers with illumination that is glare-free, not too bright, and user-adjustable. Ergonomically correct furniture and acoustical dampening are also helpful. There is no question that I would be happier in an office with these amenities.

But the idea that someone would put me in such an environment with the expectation that I would become more productive makes me very uneasy, not because I'm unproductive but because I'm not sure the research applies to me. Suppose my output were measured by something quantifiable, say the number of keystrokes I make in a day. I type almost as many backspaces as I do letters and spaces, so I'm already half as productive as I would appear to be. And, if I recognize more quickly that I'm writing misspelled words that make no sense, then replacing them with new words faster, have I become more productive?

What if at the end of each day I filled out a survey in which I assessed how I felt about my productivity? This might be more appropriate for me than counting keystrokes, considering that here at the magazine, coming up with ideas and expressing them well is valued more highly than how fast people type. But there's the rub: I do agree that productivity can be measured either by counting how well or fast people do certain things, or by documenting feelings of well-being caused by an environment. But how can I measure the quality of my ideas?

Everyone has their own way of conjuring up the muse. Let's say mine is to procrastinate as long as possible and go into action at the last moment. In a productivity survey, it would look like I'm doing zip most of the time. That would tend to make me grade myself down on a subjective survey most days—a depressing proposition. But in the eleventh hour, when I've been threatened within an inch of my miserable life if I don't produce, and my adrenaline is pumped and my blood pressure is sky high, I always seem to be blessed with my best ideas. Some people get their boosts from cola drinks, others from sunshine. Some people couldn't get a good idea if it came to them in the mail. My point is, productivity measures would seem to have their limitations.

That doesn't mean a good environment couldn't make me more creative. Oddly enough, architects have provided me with the worst working environments I've had in my whole career. That's probably where I started procrastinating in the first place, which led me to Linn's Law. It states: Bad lighting, poor ventilation, back pain from ergonomically incorrect seating, and extraneous noise all decrease in direct proportion with the proximity to the deadline. Ergo, when under extreme pressure to complete an important task, for limited amounts of time the brain is able to screen out pain, odors, noise, and visual distractions, and will do whatever it takes to capture the muse.

Can great lighting in office environments improve productivity? I'm convinced. Creativity? I hope so. But right now I've gotta go. I'm late for the ophthalmologist, and the printer needs this page in five minutes.—Charles Linn, AIA

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CREATIVE USES



THE RETURN OF THE U.S.S. BLUE GHOST

Tokyo Rose first called the U.S.S. Lexington, an Essex-class aircraft carrier, the Blue Ghost during one of her famed World War II radio broadcasts. The Lexington earned its nickname because on four occasions Japanese forces reported with great fanfare that they had sunk the "great blue ship," only to have it reappear in subsequent battles.

When it was finally decommissioned in 1991, the Lexington was moved to Corpus Christi, Texas, and placed in the harbor there for use as a museum. The ship was anchored parallel to a pier that is about 50 ft away and accessed by means of a gangway.

As a community project, the local utility company, Central Power and Light, and an electrical distributor, American Light, furnished fixtures and lamps to illuminate the aircraft carrier at night.

Forty "sports lighters," fixtures commonly banked together at the tops of poles for stadium lighting, were installed along the edge of the pier. These were aimed horizontally toward the hull and bridge of the 910-ft-long ship. A number of other metal-halide fixtures were placed on outriggers to light the bow of the Lexington.

For the first three years of operation, the lighting system was lamped with 1000W white metal-halide lamps. Then, David Thomas, of American Light, saw a sample of a new 1000W blue metal-halide lamp at a trade show.

This lamp produces blue light chemically, by blending different elements in the lamp's arc tube, rather than by coating the lamp with dye or placing gels over the fixtures. Producing the colored light inside the lamp's tube is more energy-efficient than producing it with a filter, since using a filter means that other portions of the visible spectrum are produced by the lamp and then absorbed by the filter, requiring more lamps to light an object.

When samples of the lamp, which is also being used in new architectural applications, were installed in the existing fixtures, they were enthusiastically received. "Two weeks later," says Richard Hormuth, of American Lighting, "we got the blue lamps in, relamped the fixtures, and the job was done."

The new lamps debuted during a reunion of the Blue Ghost Association, a group of former crew members of the Lexington. According to Jerry Chipman, the director of the Lexington Museum, "The members were extremely pleased. The new lights give the Blue Ghost a very eerie appearance, even from five miles away, especially when there is a little fog on the water." ■

UNITING A CHURCH ENTRY WITH LIGHT

Trinity Lutheran Church, of Shawnee Mission, Kansas, having experienced tremendous growth in its membership over the years, had decided to remodel.

"We find that a consistent problem with churches built in the 1950s and 1960s," says architect Tom Devine, of Devine deFlon Yaeger Architects of Kansas City, Missouri, "is that they have a number of entrances." This church had four entrances, and it was confusing to decipher which was the main entry. The architects' first chore was to try to make all the circulation uniform and to identify a real, proper entrance. "We wanted an entrance that could be seen from an automobile approaching from a few blocks away," says Devine. "You start the procession into the church from your car, driving into the parking lot, walking through the parking lot, under the canopies, and into the main gathering space."

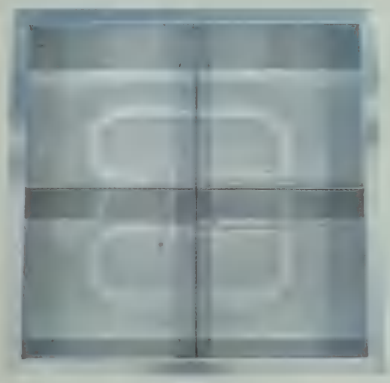
A row of bollards illuminated by metal-halide lamps leads night visitors to the new church entry. The entrance is marked by three towers of varying heights, which represent the Trinity. The base of the spires is made of concrete panels and grazed with warm-colored downlight from PAR30 spots in cans hung from wall brackets. The upper half of the spires is made of translucent fiberglass panels lit internally by 70W metal-halide fixtures placed on two platforms. "We didn't use just a single fixture, because we wanted the light to be even from top to bottom," says Devine.

The spires support a pair of canopies made of translucent fiberglass panels. These are uplit on each side by a row of tubular T8 fluorescent fixtures; additional PAR30 cans light the sidewalk. The fluorescent tubes also glow through the fiberglass panels onto the spires.

Two design themes established by the new entrance are carried inside to the congregation's renovated gathering room: the shallow, gabled profile of the canopies establishes the pitch of the multilevel ceiling; and, like the canopies, the ceiling is indirectly lit. ■



PHOTOGRAPHY: COURTESY VENTURE LIGHTING (LEFT); © ARCHITECTURAL FOTOGRAPHICS (RIGHT)

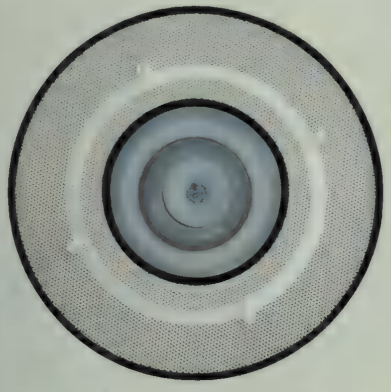


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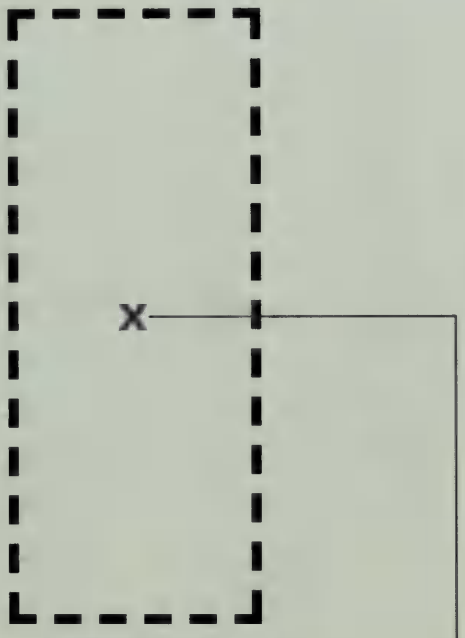


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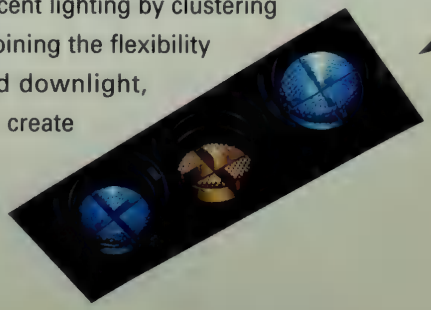


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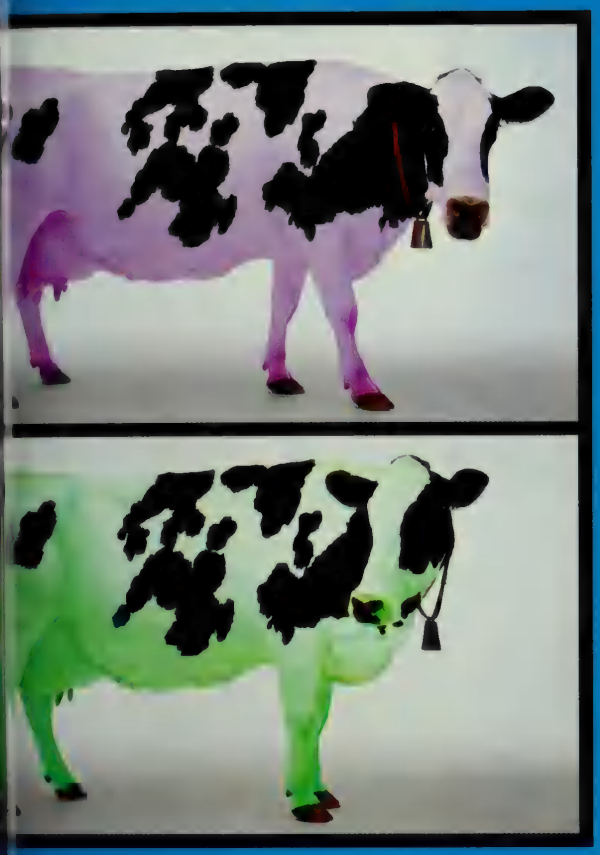
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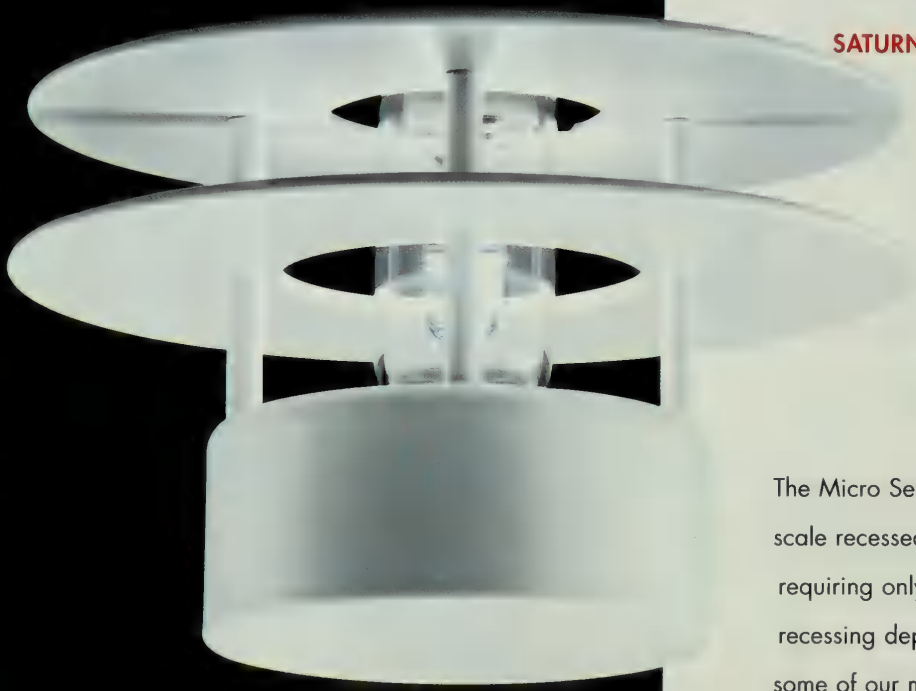
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CIRCLE 60 ON INQUI

Parasailing Fishes Take Aqualuminescence Below Sea Level

by Gareth Fenley

To enter the Flying Fish Café is to enter a fantasy within a dream world. The restaurant is in the prime position on the village green at the first mixed-use development at Disney World, called BoardWalk, designed by Robert A.M. Stern, FAIA. BoardWalk conjures up the atmosphere of Coney Island 40 or 50 years ago. The famed Brooklyn amusement parks inspired architect Marty Dorf in his choice of the restaurant's primary themes.

"Coney Island was incredibly eccentric," Dorf says. "It celebrated the spirit of excess in our humanity. It titillated and scared you and made you so happy you never wanted to leave." Blended with the evocation of Coney Island is the restaurant's emblem, the flying fish. "It's an image that embodies energy, joy, and fantasy. Yet the restaurant appears fairly sophisticated, not cartoonish. It has serious, understated elegance even though it's kind of funny."

The exterior of the Flying Fish is decorated in neon, with animated fish that appear to flap their wings. The entry is more subtle and mysterious. Just inside the front door, the lighting and surface materials create the impression that you are entering an underwater environment, with lights mounted above cobalt-blue glass and shimmering on a silvery textured wall.

Inside the restaurant, sculptured fishes play overhead. The main apparent light source is a series of custom-made indirect luminaires that feature fishes and a parachute, inspired by Coney Island's Parachute Jump attraction. Dorf initiated the concept, which was implemented by lighting consultant Bill Schwinghammer, of Johnson Schwinghammer. "We placed a double-ended 200W halogen lamp in the tube that uplights the parachute, which is made of poured and molded fiberglass resin," Schwinghammer says. "It gives a glow of yellowish white incandescent light when dimmed down."



Neon fish flap their wings like an old Coney Island attraction, beckoning diners to sample the café's delights.

The main source of ambient light comes from slots housing AR111 low-voltage lamps with black honeycomb louvers. The AR111 has an aluminum reflector and is 111 mm in diameter. "It's a very controlled light source, a European version of the PAR36," says Schwinghammer. "I like to use it because of the control it provides. I used a light pink filter on the lamp here, to cut the whiteness and make it more flattering to people at the tables."

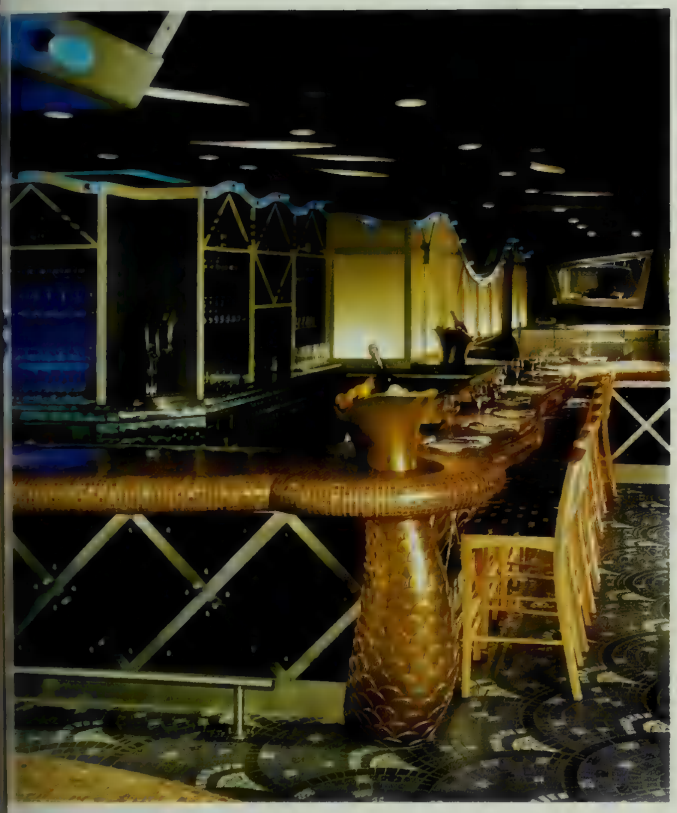
Sirmos, the company that fabricated the parachutes, developed another unique custom feature for the Flying Fish: cast-resin imitations of small incandescent lamps, which are lit by fiber optics. The original restaurant design called for walls studded with incandescent channel strips. But not only would the channel strips have been expensive to fabricate; they would have been too hot and put electrically powered sockets too close to the reach of children. The fiber-optic solution avoided these problems and was accomplished at about the same cost. Some of the faux bulbs are blue and others are an incandescent-like yellow.

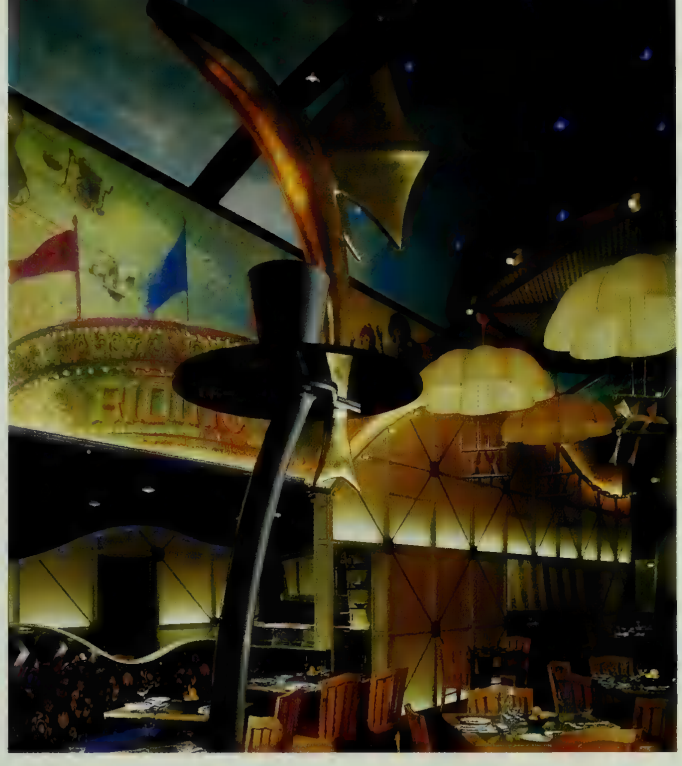
A more conventional application of fiber optics occurs in the ceiling, where "stars" twinkle through pinholes in a deep blue field. A blue

Gareth Fenley is an Atlanta-based freelance writer who writes frequently about architecture.

Project: *Flying Fish Café at Disney's BoardWalk*
Disney World, Florida
Architects: *Robert A.M. Stern (Disney's BoardWalk); Dorf Associates (Flying Fish Café)—Martin Dorf, principal*
Lighting Consultant: *Johnson Schwinghammer Lighting Consultants Inc.*
Electrical Engineer: *Thompson Company*
General Contractor: *McDevitt Street Bovis*







The blue "incandescent" lamps that march over the bar (left) in a wave are actually lit by fiber optics. The flying fish uplight (above) is one of the restaurant's many custom fixtures.

ilter on the metal halide illuminator gives the stars a blue cast, and the ontrast between the ceiling and the warmly lit parachutes in the fore- round helps create a sense of depth.

Even an ordinary-looking detail was solved with a custom fixture. The uplight on a wall-graphic "billboard" is a custom railing fitted vith 10W low-voltage halogen lamps. The billboard lights, like other ncandescent sources throughout the project, are on a dimming system.

"There were so many details," says Schwinghammer. "It took a ot of work to get it to look like it does. There are a lot of remote transormers and lightboxes and fiber-optic cables. We had to plan it well in advance and work with the electrical engineer, or this would have been a nightmare in the field."



Schwinghammer does not give fiber optics a blanket recommendation. "Fiber optics has limited use," he says. "It's really hard to find a use for it in retail spaces, which is the application for which it is often recommended. Fiber optics will work where you have very, very low ambient light levels; it's perfect for museums, for instance. But in many places it doesn't work.

THE APPARENT LIGHT SOURCE IS THE FLYING FISHES' PARACHUTES.

"In this job fiber optics was good because of the design criteria. We took the technology and used it appropriately. It didn't cost any more to use it than to light it the old-fashioned way, with hundreds of S14 lamps and custom mounting channels. Disney had the vision to achieve this design."

"It came off as well as we wanted it to, even better," says Paul Katen, Senior Development Manager for Walt Disney Imagineering. "It was a challenge to make it whimsical but elegant, with fine millwork and sophisticated layers of finishings. I've done a lot of work for Disney and this is one of the most totally integrated designs I've ever worked on. And it was fun." ■

Manufacturers' Sources
Custom decorative luminaires: *Sirmos Fiber Optics*
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Billboard uplight rail: *Starfire*
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CIRCLE 61 ON INQUIRY CARD

The Very Fine Art of Lighting Basic Black



by Charles Linn, AIA

Pilasters grazed by uplights and backlit balusters are shown in an early concept drawing, left, and in finished form, below.

Emporio Armani, the Italian design firm's Madison Avenue store in New York City, occupies a magnificent, five-story stone town house. This conservative, elegant setting is filled with sleek showcases and vitrines made of black lacquered wood and glass that display the designer's classic men's and women's clothing. Almost all of the fashions shown here are either black or in neutral tones, and Paul Gregory, principal of Focus Lighting, says that the biggest challenge to lighting the store was "getting in enough light to make the basic black sparkle, to bring out its richness."

Gregory and Carlos Inclan, the project manager, presented their lighting concepts to the client using renderings done in yellow and white colored pencil on black illustration board (above). Inclan, who created the renderings, used white to simulate edges, corners, and surfaces of objects and yellow to indicate the direction and distribution of light rays coming out of fixtures and the way they will strike the objects. According to Gregory, showing the objects in white outlines and allowing the yellow lines to represent the way light will "fill" the lines can give clients a reasonably accurate simulation of the lighting concepts, provided that the distribution of light from lamps and fixtures is accurately represented.

While the clients wished to avoid overstatement, Emporio Armani is not unlike other stores in that the storefront must be attractive, memorable, and substantial in its visual impact. This was accomplished by installing pods of 70W metal-halide spotlights that graze the pilasters, their capitals, and the soffit above. A balustrade on top of the roof is backlit by a high-output fluorescent sign-lighter with a straw-colored gel.

The front windows on the ground floor are framed by a backlit glass box. This band of brightness draws attention to the clothing, as well as providing ambient light for the mannequins. The glass in the box, held together by a chrome-plated steel frame, is called "seed glass" because of the tiny bubbles that texture its surface. The glass is lightly sandblasted on the reverse side to more evenly diffuse the light that comes from 10W incandescent lamps spaced on 6-in. centers. A similar detail is used to encase the columns at the ceiling. A theatrical projector mounted on a soffit inside the front door projects the Armani logo onto the sidewalk.

Accent lighting for the front window mannequins is accomplished using PAR38 track lighting that is recessed into a pair of troughs parallel to the display windows. The troughs are spaced far enough apart so that the displays can be front- and backlit and are wide enough to allow plenty of room to move the fixtures through their maximum possible range of adjustment. The track heads are made of solid milled aluminum that matches other light fixtures throughout the store, and they are fitted with stainless-steel honeycomb louvers.



Display cases and vitrines on the first floor of the store are illuminated by the same aluminum PAR38 fixtures used in the display windows. Here the track is also recessed into troughs to keep the ceiling plane clean. The vitrines behind the cash-and-wrap counter are illuminated by T8 fluorescent lamps built into a soffit.

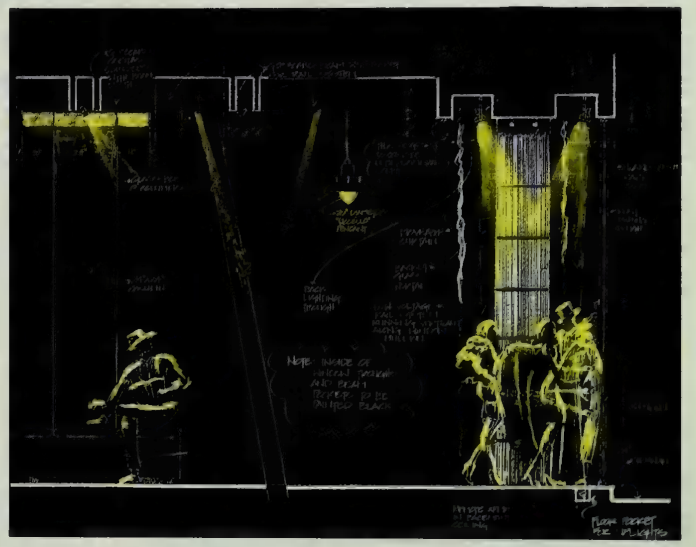
Project: *Emporio Armani New York, New York*
Architect: *Aero Ltd.—Thomas O'Brien, project architect*
Lighting Designer: *Focus Lighting—Paul Gregory, principal; Carlos Inclan, project manager*
General Contractor: *Vista of New York—Phil Arnold, project manager*



PAR 38 track lighting is recessed into light troughs, devised to help keep the ceiling free of clutter while providing plenty of positions for fixtures.



Low-voltage tracks in fluorescent-backlit troughs illuminate clothing in the upper floors (left). Concept drawings (right) show how the front windows and column capitals are lighted.



Low ceiling heights on the second and third floors were a challenge. To achieve high levels of ambient light while accommodating accent lighting, special ceiling troughs were developed. The 6-in.-wide troughs were cove-lit from the sides by recessed T8 fluorescent lamps and covered by matte-finished pieces of acrylic sheet, faux painted to resemble parchment. The acrylic sheet, installed 3/4 in. above the finished ceiling plane, has a row of 3-in.-square holes cut into it to allow MR16 accent lights to be attached to a track inside. The track heads have long stems so that they hang far enough below the recessed acrylic sheet to be easily adjusted. The custom-built shades are made of steel spun into a bullet shape, which is finished in brushed nickel, and they are also fitted with honeycomb louvers.

Windows on the second and third floors also serve as display areas, and the track fixtures used are identical to the solid aluminum type on the first level, except that they are of the PAR30 size.

"The light levels in the store are relatively high," says Gregory. "This allows us to bring out the many colors that are present in a piece of black fabric and to make the most of the neutral colors of the clothing."

In the unlikely event that Armani's clothing line should one day shift to bright colors—in fashion, almost anything is possible—substituting lower-wattage lamps could easily adapt the store to change. "You just don't need as much light when you are lighting objects that have bright colors," says Gregory. ■

Manufacturers' Sources

Track lighting, monopods: *Litelab, Tech Lighting*

Backlit glass boxes and column capitals: *Lightmakers*

Fluorescent cove lighting: *Starfire*

Fluorescent sign lights: *Legion*

Metal-halide uplights: *Hydrel*

Incandescent and fluorescent lamps: *General Electric, Osram Sylvania*

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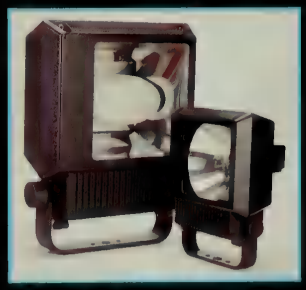
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specialty museum lighting

EDISON PRICE LIGHTING

Forest and River Are Metaphors in Vancouver Airport's Light



by Gareth Fenley

Designers of the new international terminal at Vancouver International Airport wanted it to be much more than a functional processing plant for passengers. "We wanted to take it beyond that and introduce strong regional themes that would celebrate the heritage of British Columbia," says architect Clive Grout of Architectura. That meant taking advantage of fabulous vistas across the sea to the mountains, using a natural color palette and daylighting, and drawing on local and regional design influences wherever possible.

Lighting designers from Auerbach + Glasow were an integral part of the team that searched for design solutions. "We would begin here [at the architect's office] and try to get really clear on the feel, character, and shape of the spaces," Grout says. "The lighting designers came in and we closed ourselves away for a couple of days and had a charrette."

The design team went through drawings of the building and did a preliminary lighting design, which the lighting designers took away to develop more technically, until the design was very clear. The electrical engineer, Robert Freundlich & Associates, then took Auerbach + Glasow's work and prepared drawings for bidding. "It was very collaborative and very invigorating, because we interacted on more than just lighting fixtures," says Grout.

"We were very much a part of early conceptual design," says Len Auerbach, principal in charge of the project. "Our mandate was to design lighting that would play a principal role in the structural look and feel of the building, while adding a strong visual element in the interior design theme of the space."

"Right from the initial massing studies, there was discussion about how to introduce integrated elements," says Larry French, the project manager. "And there was a very strong emphasis on trying to find metaphors that would relate the design to the natural landscape of Vancouver. We had creative jam sessions that were very dynamic and exciting."

On a walk through the facility, arriving passengers are taken up—as if to the treetops—on suspended skybridges that afford spectacular views of the Vancouver skyline and the mountains. Indirect fluorescent fixtures are hung overhead in a chevron pattern, pointing the way as passengers proceed to customs. From the flying walkways, arriving passengers drop down two floors to the arrivals level, traversing a three-story atrium illuminated by fixtures integrated into the suspended bridge overhead.

A regular pattern of indirect fluorescent fixtures around the perimeter directs the visitor to the baggage claim area. The guiding regional metaphor for the fluorescent fixtures was logs floating in a river. As passengers move further into the baggage claim area, the pattern begins to fracture, eventually forming a logjam of fixtures heading toward the exit.

In the double-height main ticket concourse, fixtures are suspended in each bay on custom hanger frames. Frames are organized in configurations of six, four, and two fixtures, depending on the size and shape



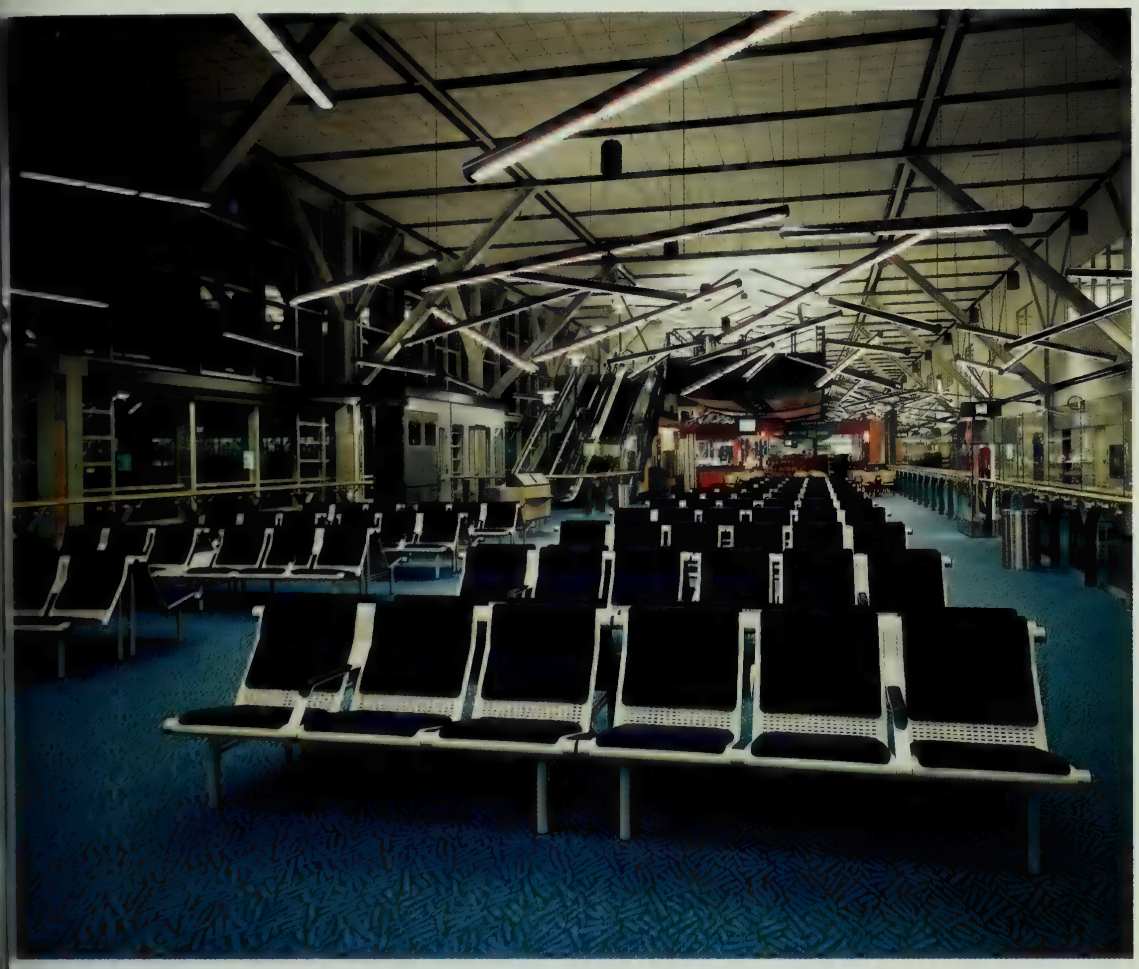
The skybridge is lighted by a chevron of fluorescents above and metal-halide downlights below.

Project: *International Terminal, Vancouver International Airport Vancouver, British Columbia*
Architect: *Architectura—Clive Grout and Stanis Smith, project architects*
Lighting Designer: *Auerbach + Glasow—Len Auerbach, principal in charge; Larry French, project manager*
Electrical Engineer: *Robert Freundlich & Associates*

In the terminal's ticketing concourse (above), downlight cans with indirect-uplight components are suspended from steel hanger frames. In the food court (right), clusters of glass globes with compact-fluorescent lamps arch from poles reproduced from an earlier era, giving the space the feel of a seacoast village. On the skybridge, linear fluorescents hung in a chevron pattern direct passengers to customs.







The guiding metaphor for the fluorescent fixtures in the baggage claim area is logs floating on a river. As passengers leave the baggage area and proceed toward the exits (left), the logs gradually become a "logjam."

f the bays defined by column locations. Each fixture combines upghting and downlighting components. The designers preferred to se indirect lighting alone, but downlighting was necessary in areas with igh ceilings.

At the food court, lighting takes the form of clusters of molded lass fixture heads mounted to floor poles. The historic fixture heads, milar to those found in seacoast villages around Vancouver, were modied to accept compact fluorescent lamps. Grout says that the manufacrer filled the order using fixtures that apparently had been kept in ventory for 45 years. "When we found the fixtures," he says, "some were rapped in newspapers from 1952."

THE PHILOSOPHY IS THAT LIGHTING IS NTEGRAL TO THE ARCHITECTURE.

At the departure gates, perimeter lighting uses suspended fixres that again combine direct and indirect components. They were ecially modified with a 50-percent-open perforated metal shield on the plight to minimize glare for patrons on the overhead skybridges.

Energy use in the new terminal is 40 percent less than in its precessor. "The goal for the entire building was to keep consumption to 0 watt per square foot," says French. "It clocked in at 0.8, an extremely w figure for a building of this size." Photocell-based daylighting controls d cycled switching systems contribute significantly to the energy savings.

Maintenance concerns were not forgotten on the project. French says, "We kept the number of different lamp types down. The lamp inventory they have to keep on hand is very small for a building of this size." The terminal has more than 750,000 sq ft of lighted interior space.

Grout calls the project "a custom job within a commercial budget." To save money, bulk purchases were made directly from the manufacturers, an unusual procedure for this government client. The owner negotiated purchase prices for luminaires and supplied them to the contractor. "We also got price commitments for a planned future expansion that will use the same fixtures," Grout adds. "Otherwise, the situation would leave us very vulnerable to paying more the next time around."

The terminal's lighting system demonstrates the value of an integrated design process. Says Grout, "We were searching for the lighting that was appropriate for each space, not just laying a grid over the whole facility." Adds Auerbach, "The project relied on the philosophy that lighting is integral to architecture. It is not a pasted-on thing." ■

Manufacturers' Sources

Recessed metal-halide downlights: *Kramer Lighting, Inc.*

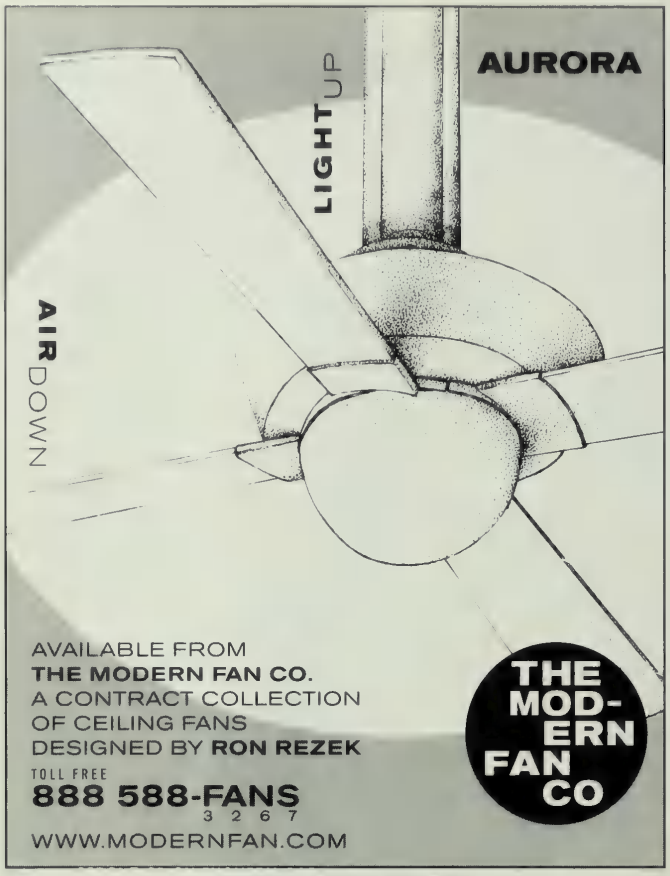
Recessed compact-fluorescent downlights: *Lightolier, Inc., Zumtobel/Staff*

Linear fluorescents: *Ledalite, Inc.*

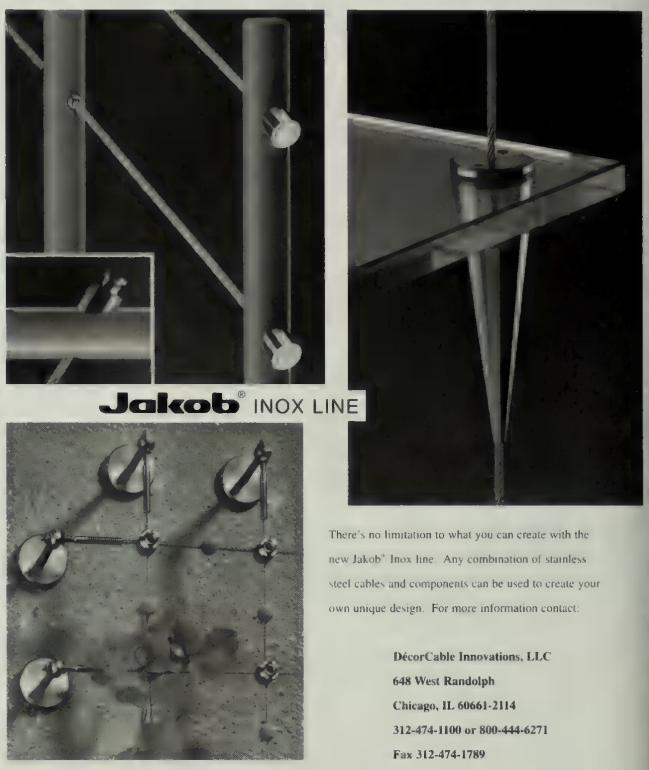
Freestanding poles in metal halide: *Poulsen, Holophane*

Compact-fluorescent task lighting: *Zumtobel/Staff*

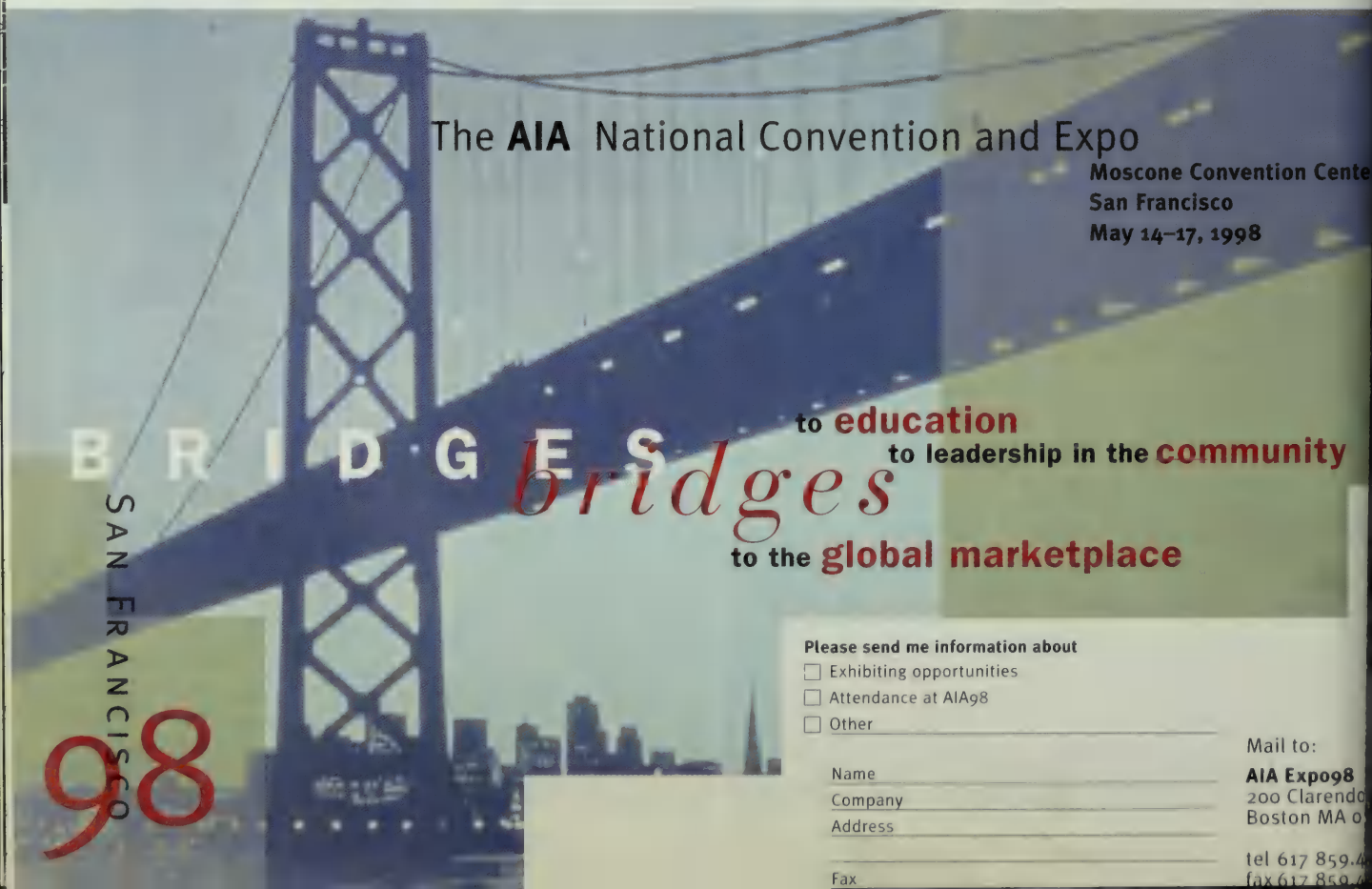
Glass shades: *Holophane*



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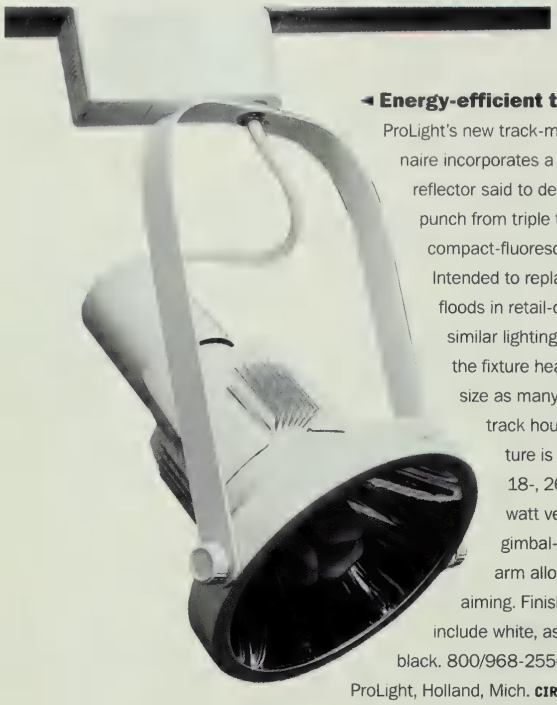


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LIGHTING BRIEFS



◄ Energy-efficient track light

ProLight's new track-mounted luminaire incorporates a multiparabolic reflector said to deliver maximum punch from triple twin-tube compact-fluorescent lamps. Intended to replace 150W floods in retail-display and similar lighting applications, the fixture head is the same size as many common track housings. The fixture is available in 18-, 26-, and 32-watt versions; a gimbal-type mounting arm allows for precise aiming. Finish options include white, as shown, and black. 800/968-2556. ProLight, Holland, Mich. **CIRCLE 230**



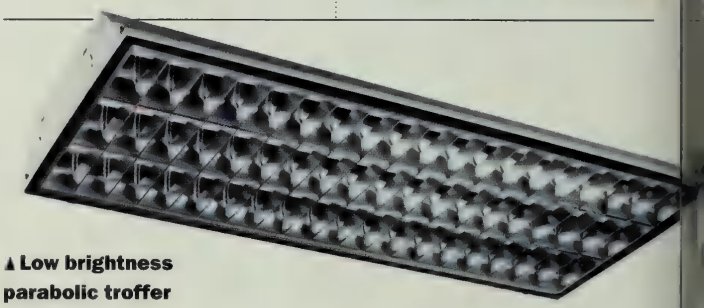
▲ Simplify your ceilings

A brand-new design, the ExitLite downlight combines the functions of a corridor downlight, an exit sign, escape-route signage, and emergency-egress lighting in one low-profile, recessed luminaire. It produces over 10 fc in the emergency mode; UL-approved fixtures need only a 5-in. recess. 305/652-1600. WILA Lighting, Inc., Miami. **CIRCLE 232**

▼ Dual-function museum fixture

The Gallery version of the Exotrack joins lighting and picture hanging in a wall-mounted railing. Cantilevered brackets hold the flat conductor; lampheads can be moved at will. 203/367- 5188. Tortran, Bridgeport, Conn. **CIRCLE 233**





► Tihany sconce

The Ori sconce is part of a new lighting collection the well-known restaurant and hotel designer Adam Tihany developed for Baldinger. An Art Deco–influenced collaboration with project designer Rafael Alvarez, the ADA-compliant fixture resembles M. Hercule Poirot, with a polished-nickel "moustache" set under a 12-in. disc of frosted glass. 718/204-5700. Baldinger Architectural Lighting, Inc., Astoria, N.Y. **CIRCLE 231**



▲ Low brightness parabolic troffer

The TE3P troffer, a shallow fluorescent fixture said to provide a high degree of visual comfort in VDT-intensive work spaces, comes in 2-by-2-ft and 2-by-4-ft configurations. The steel framing is painted black to give the low-iridescence louvers a floating appearance. The fixture takes three T8 lamps; electronic ballasts are standard, and the troffer may be specified with options such as master/satellite wiring and dimmable ballasting. The unit meets the "preferred" requirements of the IES-RP1 when fitted with an optional specular-finish reflector. Steel housing is only 3 3/4-in. deep, and can be installed in NEMA type F or G ceilings. An architectural catalog covers all specification grade products. 800/523-3602. Simkar Lighting, Philadelphia. **CIRCLE 234**



◄ Problem-solving duo

Luxo's new Two Component luminaire line addresses two office-lighting jobs: providing a comfortable level of indirect, ambient illumination without glare on computer screens, and supplying the right light for paper-based desktop tasks. Options include freestanding floor lights and ceiling-, furniture-, and wall-mounted ambient luminaires. There are eight models of portable, personally adjustable task lights for compact-fluorescent or halogen sources. 800/222-5896. Luxo Corp., Port Chester, N.Y. **CIRCLE 235**

▼ Updated "schoolhouse" light

Berkeley ceiling fixtures have shades of satin-etched glass suspended from an hourglass-shaped canopy in an oil-rubbed bronze finish. 415/778-4300. Boyd Lighting, San Francisco. **CIRCLE 236**





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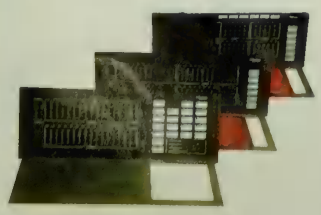
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LIGHTING BRIEFS



▲ Theatrical exterior floods
The Ecodome is a weatherproof, tamper-resistant housing for Studio Color automated luminaires. The polycarbonate dome allows full use of the luminaire's 360 degrees of movement, letting designers illuminate 20-story-high buildings like a stage set, with roaming spots and vivid colors. High End Systems, Austin, Tex. **CIRCLE 237**

▼ Commercial dimming
Macro describes its Designers Series as the industry's first family of compact, affordable, multifunction light-dimming and control systems for small to medium-size commercial lighting applications. Each panel is easy to program for multiple presets of all dimmable light sources, on multiple circuits, indoors and out. Preset scenes are held in memory until reprogrammed, or manually overridden as needed. The control unit fits nearly flush into building walls; slider controls are illuminated behind a lockable viewing door. 800/99MACRO. Macro Electronics Corp., Austin, Tex. **CIRCLE 238**

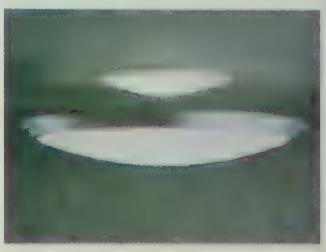




▲ Cove and accent-light combo
Developed as a sleek fixture for reception areas, conference rooms, banks, and galleries, the Flap Wall System consists of extruded-aluminum sections that work as an architectural cove, concealing T8 fluorescents. Modules can be ordered with a hidden low-voltage track for snap-in MR Spots to illuminate artwork. 516/694-9292. Artemide, Inc., Farmingdale, N.Y. **CIRCLE 239**

▼ Spread lens line
New spread lenses soften the distracting striations from bare PAR floodlamps, widening the beam of light and producing a more even illumination suitable for museum and gallery applications. For PAR38, PAR36, and AR111 lamps, lenses come in three versions: 30- and 70-deg linear, and a 40-by-70-deg wallwashing lens. 212/521-6900. Edison Price Lighting, New York City. **CIRCLE 240**



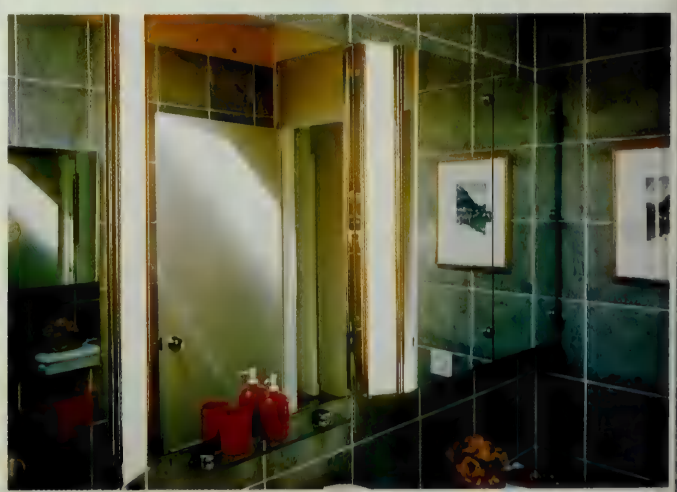


▲ Pendant for low ceilings
Visa's new Ovation luminaire takes advantage of a shallow (3-in.-deep) recessed housing that can hold two 26W quads or a single 42W triple fluorescent, illuminating a low-profile diffuser with the look and feel of a pendant. Shade and trims match larger-scale pendants for a uniform look even in 8-ft-high hallways. Visa Lighting, Milwaukee. **CIRCLE 241**



◄ Exterior line-voltage MR16
The Cambria 353 incorporates an electronic transformer in its stem assembly that allows the MR16 fixture to connect directly to 120-volt power. Made of a noncorrosive composite material used in spacecraft, the light's 20-50W source is recessed to reduce glare. Suitable for exterior accent or flood lighting, the Cambria 353 is the same size as its 12V counterpart. Fully adjustable, the fixture offers versatile mounting options. 805/496-2003. Lumière Design & Manufacturing, Westlake Village, Calif. **CIRCLE 242**

▼ "Built-in" bath lighting
The first of Lightolier's new Specialty Decorative fixtures, Alice is intended as "an integrated architectural treatment." The 2- or 3-ft-long surface-mounted fixtures fit alongside a mirror or between cabinets. 508/679-8131. Lightolier, Inc., Fall River, Mass. **CIRCLE 243** ■




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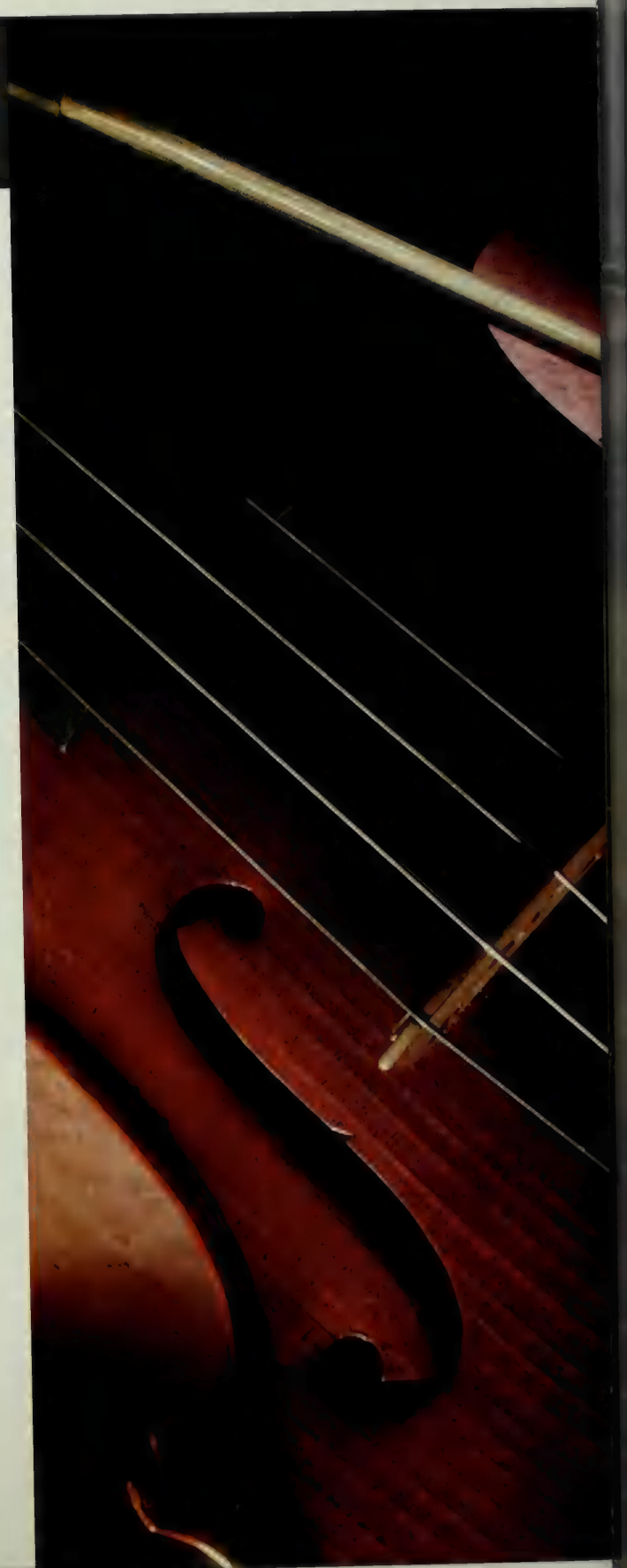
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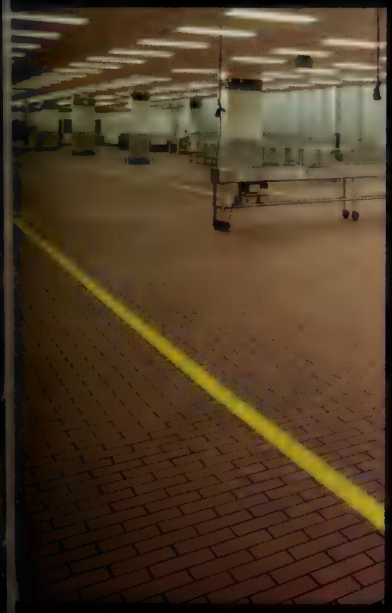
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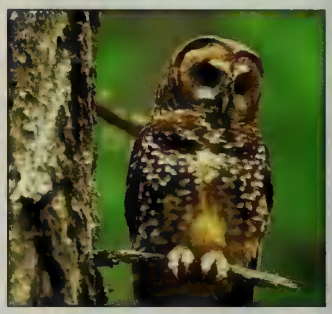


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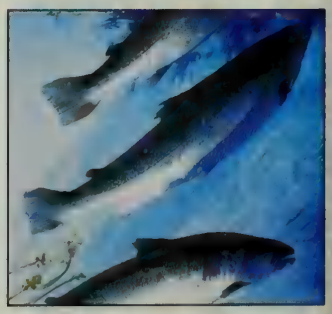
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If you are interested in the details of the Headwaters agreement and our efforts to save this forest, visit our internet site at www.palco.com. If you have any questions, write to us; we would like to answer them.

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NEW PRODUCTS

November's Products section starts with a look at four components developed to meet the stringent aesthetic and performance standards demanded by the architects of the Getty Center. This massive project tapped the skills of hundreds of manufacturers, artisans, and subcontractors, and fostered new building technologies that will be marketed as standard assemblies. On the next page, we show some products from Europe, where long-term performance is also vital. Product Briefs, pages 182–83, includes gates of hand-forged steel and wall protection that complements interiors.—*Joan Blatterman, New Products Editor*



CUSTOM-MADE FOR THE GETTY: PRODUCTS SET A HIGH STANDARD

Complex curtain wall

Nothing about the almost 120,000 sq ft of aluminum-framed curtain wall at the Getty Center (above) was standard. According to Denny Mootz, the project manager for manufacturer Wausau Metals, no two walls on any of the six buildings were identical.

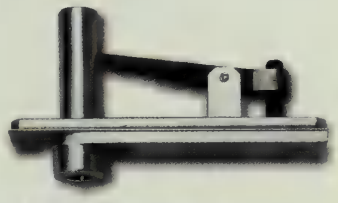
The company designed and fabricated three different sizes of pressure wall and reinforcing to span openings of 60 ft or more in height, and mocked up six shades of "Getty White" to obtain the eventual choice for the fluoropolymer-painted aluminum panels. Meier & Partners associate partner James Crawford specified the white-painted panels in 4,500 distinct shapes, sizes, and configurations, all of which had to meet an extraordinarily high architectural standard. Where the distance between two buildings required an extra measure of fire resistance, the company designed a steel-reinforced wall section. Wausau also custom fabricated window systems for the Getty project, including one configuration that allowed the attachment of stainless-steel cladding to window openings recessed into travertine. *Wausau Metals, Wausau, Wis.* **CIRCLE 250**

Modular ceiling treatment

The ceilings in many office and lab spaces in the Getty were designed to meet project architect Richard Irving's concept of a clean, "non-competitive" surface that would reinforce the architecture's 30-in. basic module. Working with Meier team member Ron Musser, lighting designers Fisher Marantz Renfro Stone, and Gil Hasler of the ceiling contractor Hutchinson Corp., Irving detailed a coordinated system based on a custom-sized Cashmere acoustic tile made by Celotex (below left). The acoustic material had to achieve a flat, uniformly white color appropriate to the color temperatures of the fluorescent sources specified. Linear fixtures were stretched from 48 to 60 in. in a custom housing, creating a 6-in. pan at each end to hold fire-sprinkler heads and life-safety speakers. The edges of the light fixture function as intermediate grid members, supporting tiles like a cross tee. Another special-size panel, 30 by 26 in., is used where light fixtures and air units share the same module, and recessed downlights are centered in 30-in.-square tiles. Each of the 156,000 sq ft of tile supplied matched the exact shade of white specified by the architects. *The Celotex Corp., Tampa, Fla.* **CIRCLE 251**

Shading preserves the view

Many of the dramatic windows in the Getty, including 50 30-ft-tall windows in the food-service building, 45-ft-high windows in the auditorium, and the 25-ft-high radiused wall of the library, are shielded by a roller-type MechoShade using ThermoVeil shadecloth in a custom gray color (below right). The system was selected for its ability to handle the large lengths of fabric required for the huge glazed areas with a chain- or motor-operated clutch mechanism capable of positioning the shade at any desired point. The fiberglass fabric allows views through the material while reducing heat gain and glare. A specially configured recess for the roller mechanism was needed to install the shades. *MechoShade Systems, Inc., Long Island City, N.Y.* **CIRCLE 252**



Seismic top-throw pivot

The overscaled size and weight of the Herculite-glazed center-hung doors at the Getty required a pivot with sufficient capacity to restrain the panels during earthquakes. Working with hardware consultant Frank Falletta, Dor-O-Matic developed an extended-throw pivot (above) to keep doors securely hung through anticipated seismic movement, and is now marketing it in earthquake-prone regions of the country. *NT Dor-O-Matic Architectural Hardware, Shepherdsville, Ky.* **CIRCLE 253** ■





EUROPEAN PRODUCTS GET A U.S. SHOWING

Building products are serious business in Europe. And a good place to get a feel for the kind of design and technology represented by this business is at Batimat, the massive trade show held in Paris every two years. Attracting over 600,000 visitors, the event claims to be the world's biggest exhibition in the construction sector, nearly twice the size of its nearest competitor. The 4,000 exhibitors expected in this month's exhibit were drawn from all the countries of Europe (half from France itself), as well as large delegations from Asia and North America, including about 250 U.S. firms. For the first time, a satellite Batimat was held in New York in conjunction with the Interplan show. And in 1998, the trade-show giant goes to Russia, Turkey, and China. If you can't get to the show, here's a look at some new European products.—*J.F.B.*



▲ Form-fitting

Designed by the Frenchman Phillipe Starck and made in Italy by Kartell, the Dr. No stacking chair is fast becoming a furniture star in the U.S. All seven colors are shown in a 1997–98 catalog. I.L. Euro, New York City. **CIRCLE 254**

▼ Danish door closers

Winner of several prestigious design awards in Germany, D Line hardware includes bath fittings such as towel bars and cup dispensers; door pulls, lever handles, and cabinet knobs; signage; and door closers. Said to close doors securely every time, without slamming, these sleek stainless-steel units use mineral oil to quietly shut doors. The closing force is adjustable. D Line International, Copenhagen, Denmark. **CIRCLE 256**



► Simple from Sweden

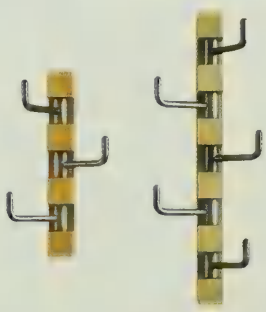
Stockholm-based Cbi makes furniture, lamps, and furnishings like this upholstered chair that remind you of why you always liked Scandinavian design. Totem Design, New York City. **CIRCLE 255**





▲ Indoors or out

For high-profile projects with a budget to match, the cantilevered-seat Butterfly bench is meticulously crafted of perforated and solid-sheet stainless steel. Designed by Gabriele Bertossa and Costanzo Marchi, the rugged piece is made in Switzerland. 800/568-2585. Design Link Int'l., Boston. **CIRCLE 257**



◄ Birch from Sweden

Unlike Swedish furnishings with cute names like Olaf or Beatnik, these coat racks of solid birch with adjustable metal hooks are called Quasimodo. A hat-shelf/hanger bar unit called Sancho P. was created by the same designer, Jonas Lindvall, for David Design, Malmo. www. totemdesign.com (Web page). Totem Design, New York City. **CIRCLE 258**

▼ Radiator as Slinky

Designed by Briton Paul Priestmen, Hot Springs are wall-mounted hot-water radiators formed of a continuous spiral of steel tubing. Manufactured in England by Bisque, units put out as much as 3,717 Btu. For vertical mounting, Hot Springs come in 25-, 49-, and 76-in. heights, with flexible connections that fit standard 1/2-in. pipe. Finish options include over 1,500 colors as well as nickel and other metals. 212/219-2120. 3-D Laboratory, New York City. **CIRCLE 259**





▲ Dry-joint rainscreen

Developed in France, lightweight Carea cladding is made of a fiber-reinforced mineral composite formed in an autoclave into 1/4-in. thick tongue-and-groove panels that interlock to prevent water infiltration without caulking. Integrally colored panels meet all appropriate building codes. Productions Carea, Inc., Saint Jerome, Que. **CIRCLE 260** ■

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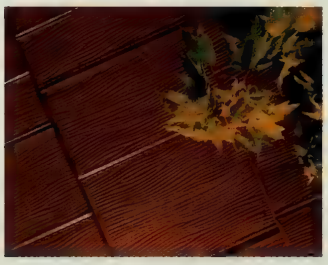
▲ Deco look in new glass
The renovation of a landmarked, 1937 Manhattan post office meant re-creating missing lights in the backlit lobby ceiling, a major design feature with 20 different sizes of Deco-style glass. Cesar Color created a custom ChromaFusion laminate that captured the special translucency, optical distortion, and imprinted striations of the original amber-colored rolled glass. 800/275-7272. Cesar Color, Inc., Burlingame, Calif. **CIRCLE 261**

▼ Architectonic shapes
Former New Yorker Jay Reynolds, AIA, uses building shapes, materials, and geometries in the furniture he designs. Pictured below: the 4-Pod table in cherry with a stainless-steel top, an angular volume set on sturdy, tapered legs. 310/559-6722. Office of J. M. Reynolds, Architects, Los Angeles. **CIRCLE 262**





▲ Vandal-resistant glazing
The architect for a New England school district didn't want to use prisonlike exterior grilles to curb an epidemic of glass breakage; instead, all windows in this school were refitted with Acrylite AR acrylic sheet. Installed in an insulating unit with tempered glass on the inside, the acrylic sheet needs an abrasion-resistant coating on only one side, lowering its cost. 201/442-6044. CYRO Industries, Rockaway, N.J. **CIRCLE 263**



◄ Residential metal roofing
The developers of the Aston Wood steel panel say its light weight—60 lbs/sq—means significant cost savings. Coated with a fade-resistant fluoropolymer, the "lifetime" interlocking roof panels come in cedar-shake and slate-look patterns. 519/858-9937. MetalWorks/Centria Joint Venture, Moon Township, Pa. **CIRCLE 264**

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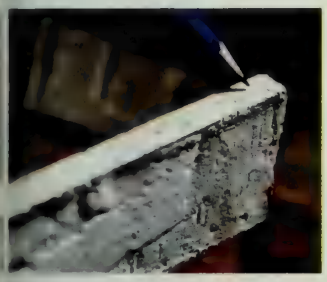


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▾ Real, thin brick
A clay brick only 1/2-in. thick weighs 20 percent as much as a standard brick. For use as an accent such as a fireplace surround or a backsplash, ThinBrick comes in dozens of colors. 303/783-3000. Robinson Brick Co., Denver. **CIRCLE 266**





▴ Architectural wrought metal
A hand-crafted gate of forged steel highlights the dramatic flair metalwork can give even utilitarian settings. Catalog shows rails, fire screens, and gates from this atelier. 415/550-9328. Jefferson Mack Metal, San Francisco. **CIRCLE 267**



▴ Right chair for the right spot
Influenced by the great designers of American Streamline Modernism such as Raymond Loewy, Paul Frankl, and Gilbert Rohde, Luis Henriquez fabricates interesting, comfortable furniture with the flair of the 1940s. Pictured: a generously proportioned lounge chair by Rohde, upholstered in tangerine-colored Zax mohair. Seating, tables, and casegoods are made for both contract and residential use; trade and quantity discounts are offered. 800/367-3003. Design America, Coral Gables, Fla. **CIRCLE 268** ■

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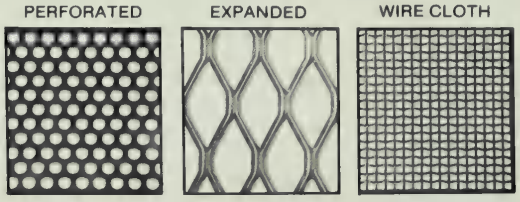


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Solid-phenolic toilet partitions

An ultradurable material said to have good flame-spread and graffiti-resistant properties, Hoechst Celanese's Trespa phenolic can be specified in washroom compartments that meet many design and occupancy requirements. A four-page brochure illustrates various hinging, mounting, and privacy options available and shows phenolic sheet made into storage lockers and laboratory countertops. 800/4-TRESPA. DesignRite, Poway, Calif. **CIRCLE 270**

Accessible washrooms

Stating that space for people in wheelchairs is a fundamental design consideration, Bobrick's revised planning guide includes captioned details and layouts illustrating critical dimensions and recommended fixture and accessory placements for public washrooms. The 20-page brochure was prepared under the direction of Ronald Mace, FAIA, the president of Barrier-Free Environments, Inc., and a leading proponent of universal design. 818/982-9600. Bobrick Washroom Equipment, Inc., North Hollywood, Calif. **CIRCLE 271**

Water-mist fire suppression

A new fire-suppression system for Aisle-Saver's compact library storage shelving uses fine water sprays to control fire situations, minimizing possible water damage. 908/272-8888. White Systems, Inc., Kenilworth, N.J. **CIRCLE 272**

Aluminum window sourcebook

A 24-page brochure describes custom aluminum windows and wall systems, including projected, rolling, and double-hung windows, storefronts, entrance systems, and curtain walls. Case histories describe specific architectural problems and illustrate window and wall solutions. 715/845-2161. Wausau Metals, Wausau, Wis. **CIRCLE 273**

Office cable management

This 48-page report provides a guide for those who seek a basic understanding of good cable-management practices, explaining how voice and data cables can be interfaced with office furniture in a way that preserves their signal integrity. Fax 800/563-7128. Office Specialty, Holland Landing, Ont. **CIRCLE 274**



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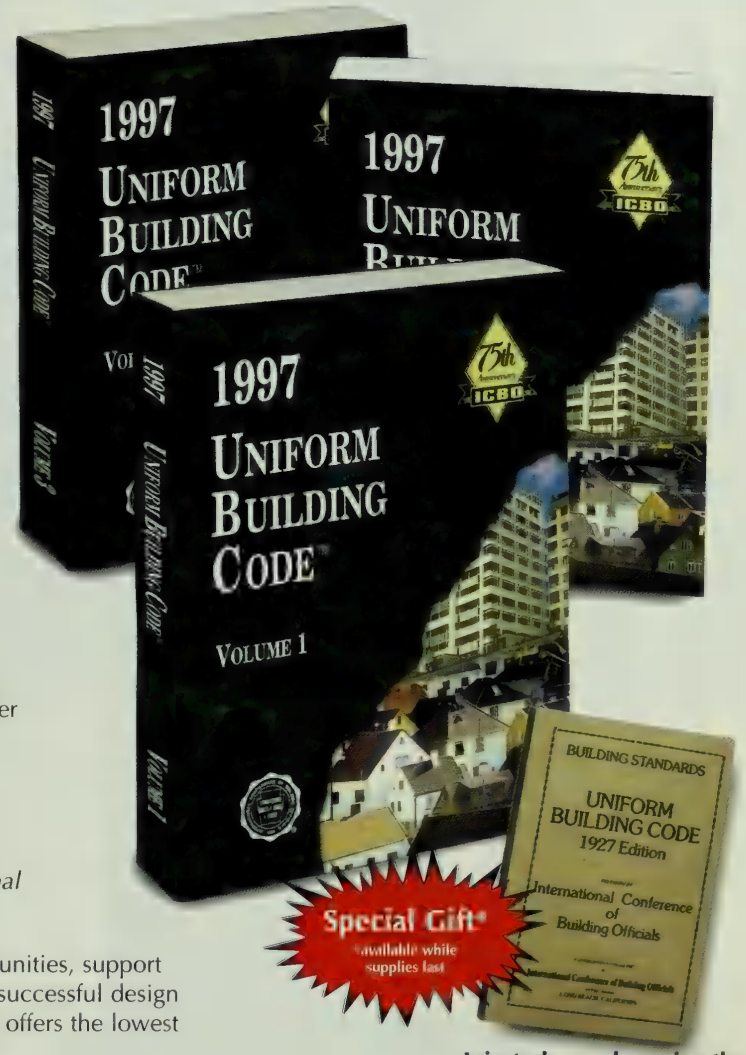
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Romance of Italian tile

The Craft of Tile Making in the Emilia Romagna, a 22-page booklet, discusses the origin of certain distinctly Italian historical design trends, shows both handcraft and high-tech production facilities, and explains the unique features of modern Italian tile. No charge. Tile Heritage Foundation, Healdsburg, Calif. **CIRCLE 276**

Grout-color guide

A pocket-size chart holds true-to-life, textured swatches of all 27 Renaissance grout colors and describes installation systems on a good-better-best basis. 800/243-4788 x235; www.laticrete.com (Web page). Laticrete International, Inc., Bethany, Conn. **CIRCLE 277**

Building-code library

The 1996 BOCA National Building, Fire Prevention, and Property Maintenance Codes have been computerized to provide reviewers, architects, and code officials quick access to any topic. Available in two formats—3.5-in. disk (sections or the entire code) and CD-ROM (entire code only)—the software offers such features as sticky notes for adding on-screen text, and highlighters for marking related sections for quicker access. All programs are Windows based; a demo can be downloaded from www.bocai.org (Web page). To order, call 708/799-2300, x242. BOCA, Country Club Hills, Ill. **CIRCLE 278**

Pine floor tips

A 20-page *Guide to Southern Pine Flooring* shows the patterns and grades of flooring available and discusses installation, finishing, and floor maintenance. www.southernpine.com (Web page). Southern Forest Products Association, Kenner, La. **CIRCLE 279**

How to beat mildew

A manual prepared by environmental engineers CH2M Hill and the Disney Development Company gives tips on how to significantly reduce the incidence of moisture and mildew in a structure to avoid possible indoor-air-quality problems. Suggestions cover each stage of design and construction, and should not add extra cost to a project. Binder price is $70. To order, call 407/423-0030. CH2M Hill, Orlando, Fla. **CIRCLE 280** ■

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An International Competition and Exhibition of Light Art at the New York Hall of Science

April 16 – May 31, 1998

ASCI

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Lightforms '98

An International Competition and Exhibition of Light Art

April 16 – May 31, 1998

Request for Proposals
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Ten semifinalists will be chosen, of which three will be selected to create and install their winning lightworks.

Guidelines
For full details visit the ASCI website at http://www.asci.org

Exhibition Site
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Eligibility
Professional lighting designers and engineers, and artists around the world

Schedule
Design Proposals Due: January 10, 1998
Notification of Winners: February 1, 1998
Installation: April 9–15, 1998

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Don Holder, Lighting Designer
Billie Tsien, Tod Williams Billie Tsien & Associates

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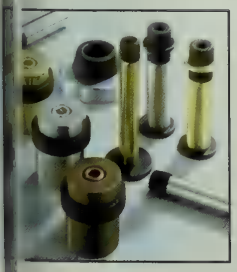
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AIA/ARCHITECTURAL RECORD CONTINUING EDUCATION

INSTRUCTIONS

- Read the article "The Architecture of Cyberspace" (pages 139–42) using the learning objectives provided to focus your study.
- Complete the questions below, then check your answers (top of page 192).
- Fill out the self-report form on page 192 and submit it to receive two AIA Learning Units.

—Mark Scher, AIA Director Professional Education Products and Services

Questions

1. How might VRML and World Wide Web technologies limit liability, lower labor costs, and improve client satisfaction?

2. Describe three challenges in using a Web site for A/E collaboration.

3. Describe a "cyberarchive" and how it contributes to a project.

4. What lessons did the teams from MIT, Kumamoto University, and Kyoto Institute of Technology learn about the importance of process in on-line, geographically distributed design collaboration?

5. Identify two reasons why video conferencing may not live up to expectations as a communications tool for international collaboration.

6. List two ways to improve the use of E-mail on long-distance projects



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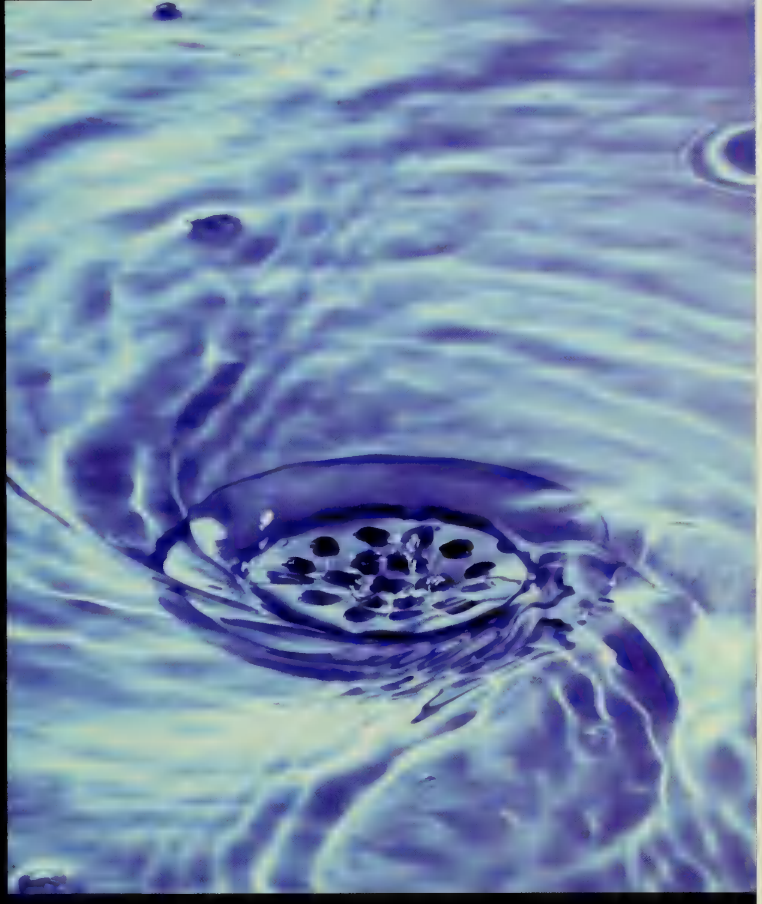
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AIA/ARCHITECTURAL RECORD CONTINUING EDUCATION

ANSWERS

Answers refer to the article "The Architecture of Cyberspace" (pages 139–42). The questions appear on page 190. To receive CES credits, fill in the self-report form below.

1. A virtual model posted on the World Wide Web is accessible to a wider choice of fabricators and more competitive pricing. Risk management may be improved by having dimensional data taken directly from virtual models, reducing possible miscommunication and faulty interpretations that occur through shop-drawing review. A virtual model accessible from client offices can keep clients in touch with model updates and provide a greater sense of realism.

2. A World Wide Web site may need to manage the huge quantities of project-related materials. The Web site usually functions with a database approach including filing, indexing, and retrieving multimedia information across what can be large distances. Another element in a collaborative Web site strategy may be the need to accommodate user groups of different cultures who have varying needs and levels of experience.

3. As used by teams from the University of California and Stanford University, a "cyberarchive" is a system for maintaining and saving design information in an electronic format. A user requests data by discipline, level of detail, and design phase through the World Wide Web. The system creates a customized Web site archive from the query results, making the project data available for specific uses. It may be especially useful during construction and facility management.

4. The teams tried at least two different approaches. One group assigned different parts of the design concept to different members of the team. Another group used a relay approach, passing the project from member to member as it evolved. The success of the project depended more on agreement about which process to use than on the approach itself.

5. Videoconferencing, which allows participants to transmit shared ideas and discussions and to see and hear other groups and individuals despite geographical separation, holds promise. However, spoken-language difficulties and different time zones were found to limit the usefulness of real-time videoconferencing in the MIT and Japanese school projects.

6. E-mail collaboration is strengthened when users develop a shorthand for abstract and complex design ideas and a system for acknowledging receipt of messages. Coupling E-mail with electronic whiteboard technology to share ideas and sketches further enhances long-distance communication. A social bond can result from an understood electronic vocabulary and can contribute to the success of the project.

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☐ "The Architecture of Cyberspace" (pages 139–42)

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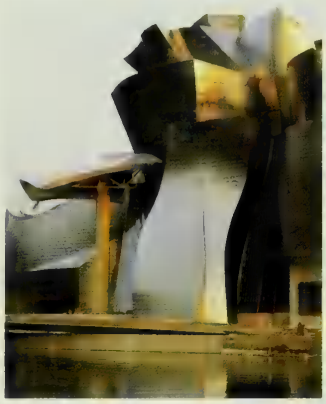
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88 ON INQUIRY CARD

(Letters, continued from page 26)

My compliments to Jeff Goldberg, especially, for the most spectacular photographs to appear in your magazine in years.

—Steve Schuller
via E-mail



I applaud Gehry's design of the Guggenheim Museum Bilbao. However, I am professionally amused at the article's undertone defending Gehry's ability to have his projects come in on time and within budget. Since the article does not have a project schedule, I can only assume this building was constructed on schedule.

However, within the budget? Although I (and I am positive thousands of other practicing architects) have never been fortunate enough to design a project that cost $389 a square foot, I have to note that this princely sum was attained after the project's size was reduced by 33 percent. I have fought many a budget battle, but never one where the client reduces the programmed space by 33 percent in order for the project to meet the budget. No wonder Thom Mayne said, "Will I ever find such a client?"

—Peter Krawchyk, AIA
Chapel Hill, N.C.

Cyber thoughts

It was with great interest that I read Robert Ivy's editorial, "Witnessing the Birth of the Cyber Age," in RECORD's August issue [page 9]. The editorial covers a topic that is all too infrequently discussed, given the tremendous impact it is having on our professional and personal lives. There seems to be an endless stream of articles on the latest innovations in hardware, software, graphics, and associated gadgets. Pensive words evaluating the global impact and value of the cyber world are all too rare.

With the generation gap so strongly felt in our offices (staffers often seem to speak a different language than principals and job captains), the proliferation of do-it-yourself 3D CADD for homeowners, the impact on presentations and other issues, the architectural cyber age is here with a bang, but without the appropriate dialogue to help us make the transition to an age that seems to have arrived so quickly.

—Thomas L. Grassi, AIA
Dumont, N.J.

I share the thoughts Ivy expressed about technology and its evolving impact on our work as architects. I am a principal of a Mexican company that has been providing support services to American architectural firms since 1995. I was pleasantly surprised to read in Ivy's editorial of the architectural process in the cyber age: "One firm produces its designs by the San Francisco Bay, zaps the data to Mexico for construction documents, then blasts them eastward toward construction projects in Japan." He describes exactly the kind of work done by my office.

Thanks to the advantages of communications technology and Mexico's low-cost labor, many architects in the U.S. have found this arrangement to be very appealing. It results in business opportunities for architects in both countries.

—German Noreiga, Architect
Consultoria y Diseno
Hermosillo, Sonora, Mexico



Kudos for RECORD

I would like to congratulate you on your magazine. In my country, there are very few architectural publications as highly appreciated as yours. Your presentation of information and new ideas and developments by the best-known architects is magnificent.

—Luis Alberto Barria
Panama City, Panama

Theory and practice

Robert Ivy's editorial in the September issue of RECORD [page 17] was very thoughtful and provocative. Yes, I also subscribe to the belief that theory (there must be a better term—theory suggests things like $e=mc^2$!) is important to the growth and creativity of architecture.

However, I disagree that theory is important only as an academic exercise. The best theories in architecture have *always* been buildable. Mies struggled to find the best way to build, and in the process he developed an extremely valid philosophy that echoes in academic halls and offices even today. And think of Palladio!

In pure science, theories that go nowhere are at least tested by the scientific method. Theories in architecture that go nowhere are usually divorced from practical application; consequently, they remain untested and must be judged irrelevant.

—James A. Gresham, FAIA
Tucson, Ariz.

Your editorial on theory and practice is I think very important. Architecture to me is about transcendence and transformation—without leaks! I think this is a critical time both for educators and practitioners. We have new possibilities and of course with that come new responsibilities.

—Cynthia Weese, FAIA
Dean, School of Architecture,
Washington University
St. Louis, Mo.

The next Reston

From all appearances, the new city of Modi'in, designed by architect Moshe Safdie and now taking shape in Israel [August, page 34], promises to be the Reston of greater Israel. Hopefully, RECORD will present the project in greater detail after its completion. Perhaps it can serve as an example to America, where government efforts to build housing for all of our citizens are thwarted, I believe, by a Republican agenda.

The reference to Israel as a "construction-happy nation" in RECORD's news article on the project suggests misplaced envy.

—Frederick A. Lee, RA
New York, N.Y.

Corrections

An August news story [page 38] failed to identify the student winners of the ACSA/Otis Elevator competition. They were Augusto Roman Moncagatta, Federico Pastor Soto, and Sharif Kahatt Navarrette of the Universidad Ricardo Palma, Peru; and Giovanni de Benedittis and Giovann Palermo, of the Università degli Studi "G. D'Annunzio" Pescara, Italy.

The project credits for Antoine Predock's Music Center, University of California, Santa Cruz [August, pages 72–75], should have included the names of the following members of Predock's team: W. Anthony Evanko, AIA, and Geoffrey Beebe, AIA, associates in charge.

Contrary to a news item in the September issue [page 37], it is the *Chicago Tribune,* not the Tribune Tower, that celebrates its 150th anniversary this year. The Tribune Tower itself is only 72 years old. ■

RECORD may edit letters for grammar, style, and space availability, taking care not to change the author's meaning. Letters sent by post or electronic mail must include the sender's address.




Jack Culley
Worries about construction delays (50% chance of rain), falling debris and what effect instability in Asia may have on his Pacific Rim Mutual Fund.
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(continued from page 107) be quite so romantic as Wright. He wisely abstracts his stone as a checkered quilt of panels separated by open joints. Meier says he wanted a signature stone, one you'd identify with the Getty, the way red sandstone becomes a symbol of Arata Isozaki's Museum of Contemporary Art in downtown Los Angeles. He succeeds.

The biggest issue at the Getty is one that goes beyond architecture and has nothing to do with Meier. Should the Getty, which congratulates itself on its outreach programs, have consolidated itself into this elite monastic hilltop campus, this Mount Athos of art? Christopher Alexander says somewhere that an American college in an idyllic rural setting will always feel like a high school because the students, not being physically part of the larger community, can never feel like citizens or, therefore, like grown-ups. What if the Getty, instead, were integrated into the city, like an Oxford or a Harvard—fully itself at the center, but mingling into its surroundings at the edges? Wouldn't everybody benefit? Won't the staff get tired of meeting at the cafeteria? Wouldn't a bigger schmooze pool be more stimulating to them?

And in spite of a nearby bus stop, the Getty is hopelessly car-dependent: another gated community. It seems safe to predict the visitor parking and the access tram will be hopelessly oversubscribed in the early months after the public opening; reservations will have to be made long in advance. Worse yet, on this site the Getty can never legally expand. A setting in the city would have allowed for inevitable growth and change. The Getty's huge financial investment, by attracting further development around it, might have spun off some benefits for someone besides itself. The choice of site is an expression of institutional ego and self-importance.

But, as noted, that's not the architect's fault. Meier is a perfectionist sculptor of light and space, a great fan not only of the early modern movement, but also of Borromini and of the central European Baroque. You hire him, you know you're going to get that. You know the minuses: everything will be so perfectly detailed that the first time anyone picks up a hammer to make a change, the result will look as messy as muddy tracks on virgin snow.

You also know the pluses. The Getty is a textbook of ways to embody light in architecture. Like Rudolf Schindler in this same sunny climate, Meier employs stepped forms and cantilevers to model light and shade. Stairs and canopies, clipped on the outside of the main masses, cast intricate patterns of shadow. Curved surfaces are crescents of light. Transparencies create luminous collages. Long views are framed in white tracery. Sometimes the light is so tangible it seems to be a volume inside a space, pushing out, rather than the reverse. The dark painting galleries, so un-Meierlike, only make the light more magical when you emerge from them. It's all very accomplished and, at the scale of each separate initiative, it's often very beautiful.

Which brings us back to where we started. The English poet Coleridge offered a famous definition of poetry as opposed to prose. Poetry "is discriminated by proposing to itself such delight from the *whole*, as is compatible with a distinct gratification from each component *part*." The Getty is poetry in its insistence on gratifying us with each part, each architectural rhyme and image. But the whole is less happy. We've got an anthology, not an epic. The Getty is like a pile of marvelous white Richard Meier houses, dropped helter-skelter from a helicopter onto the site. That's no bad thing. But it's a step short of the masterpiece we all, probable unfairly, hoped for from this client, this program, this architect. ■

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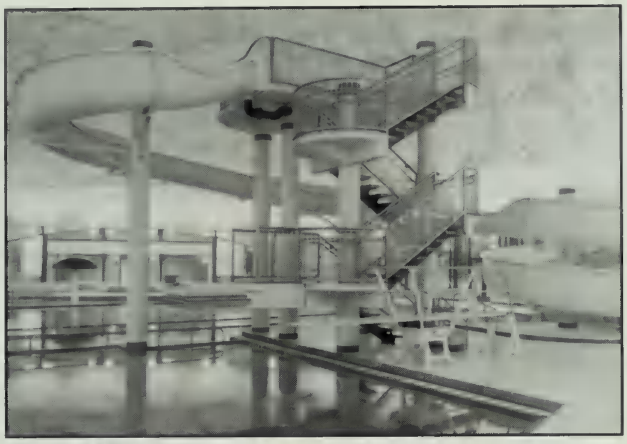
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(continued from page 55) thinker. The exhibition gathers together some 500 examples of his work, including drawings, models, books, and photographs. Call 514/939-7000.

Through May 31, 1998
Canadian Center for Architecture
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An exhibition of architectural toys, "Toy Town," explores how village, town, and city have been represented by toys from several cultures over more than two centuries—from early 19th-century German wooden villages to recent CD-ROMs. The exhibition comprises 26 to towns from the CCA's collection. Call 514/939-7000.

Through May 31, 1998
National Building Museum
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"Planning Washington's Monumental Core" examines the history of urban planning in the nation's capital, from L'Enfant's design of 1791 and the Senate Park Commission plan of 1902 to the National Capital Planning Commission's Legacy plan, which was unveiled last year. Historic and contemporary photographs, as well as civic Web sites and interactive videos, are presented. Call 202/272-2448.



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Competitions

Sponsored by the UIA and the Union des Architectes de la Roumaine, **Architecture and the Eradication of Poverty** is an international, open competition for professionals and students. The competition calls for ideas that will show that architecture has a social mission and that it can play a part in the betterment of living conditions in both developed and developing countries. Proposals may be submitted for large- or small-scale ideas, for individual or grouped buildings, for shelters, or for urban and rural planning projects. Registration deadline is November 30; submission deadline is February 16, 1998. For information and registration, write the UIA General Secretariat, 51 rue Raynouard, 75016 Paris; call 331/45-24-36-88; or E-mail uia@uia-architectes. org.

The Architectural History Foundation announces the **Vincent Scully Research Grant,** a $10,000 biannual award to facilitate the publication of a monograph on American architecture. Preference for the grant will be given to projects that are substantially complete and/or under active consideration for publication. The deadline for applications—which must include a book proposal, an outline of how the award will be utilized, and other materials—is February 2, 1998. For further information about application, contact the Architectural History Foundation, 350 Madison Avenue, New York, N.Y. 10017, or fax 516/944-5961.

Exhibitgroup/Giltspur, an exhibition marketing agency, invites design students to enter its **'97 Launch Your Career in Exhibit Design** competition. Entrants, who must be sophomores and juniors enrolled at an accredited college or university, are asked to design a trade show exhibit for a young company that is introducing a revolutionary new product at an upcoming international trade show. First-, second-, and third-place prize winners will receive tuition scholarships of $7,500, $5,000, and $2,500, respectively, and a paid internship at one of the sponsor's design studio/production facilities. Entry deadline is December 1. Write Launch Your Career, Exhibitgroup/Giltspur, 201 Mill Road, Edison, N.J. 08817; or E-mail launch-career97@e-g.com.

The American Society of Architectural Perspectivists (ASAP) invites entries to its **13th annual International Competition and Exhibition of Architectural Illustration**. Entries in two categories—formal and sketch—must be in the form of 35mm slides of original work



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(including computer renderings), representing proposed buildings, interiors, or architectural environments. Winning entries will be presented in a traveling exhibition that will open in Atlanta in 1998 in conjunction with the ASAP's national convention. Entry deadline is January 16, 1998. For more information on the competition or ASAP membership (a requirement of entry), write Architecture in Perspective 13, Alexandra Lee, Executive Director, American Society of Architectural Perspectivists, 52 Broad Street, Boston, Mass. 02109; call 617/951-1433 x225; or fax 617/951-0845.

The **Tile Promotion Board's Spectrum International Ceramic Tile Design Competition** honors creative excellence in residential and commercial ceramic tile design. Architects, interior designers, contractors, builders, retailers, manufacturers, distributors, and others who have influenced the specification or installation of ceramic tile may enter projects completed between January 1996 and December 1997. Submission deadline is January 31, 1998. Winners will be announced during the International Tile & Stone Exposition's All-Industry Awards in Orlando, Florida, next April. For more information, call the Tile Promotion Board at 800/495-5900 or 561/743-3150; fax 561/743-3160.

The competition for the **$20,000 James Harrison Steedman Traveling Fellowship** for study/travel abroad is geared to the theme of "water and ground." Candidates must have received a professional degree from an accredited architecture program no earlier than 1989 and must be working for an architectural firm or have at least one year of practical experience. Contact Steedman Governing Committee, Marianne Pepper, Washington University School of Architecture, One Brookings Drive, St. Louis, Mo. 63130; call 314/935-6293; or E-mail Steedman@arch.wustl.edu/steedman/.

An international, open competition is being held for the design of the **Office for the Fundacio Mies van der Rohe, Barcelona**. Sponsored by the Barcelona City Council, Editorial Gustavo Gili SA, and the Fundacio Mies van der Rohe, it is open only to architects under 40. The competition is for the design of the foundation's headquarters and proposes as its design theme a building linked to the pavilion designed by Mies for the Barcelona Exposition in 1929. The brief includes a multipurpose hall, an auditorium, and areas for management administration, and archives. Deadline for registration documentation is November 15; submission deadline is March 31, 1998. To register write Editorial Gustavo Gili, Rossello 87–89 08029 Barcelona; call 343/430-5435; or fax 343/430-4653.

Upcoming deadlines for the **1998 AIA Honors and Awards** program are as follows: Young Architects Citation (nomination by AIA component required), submissions due November 21 Architecture Firm Award, Henry Bacon Medal for Memorial Architecture, Institute Honors Thomas Jefferson Awards for Public Architecture, and ACSA/AIA Topaz Medallion for Excellence in Architectural Education, submissions due December 12; Honorary Memberships (nomination by national board member required), nominations due December 19 AIA/NCMA Design Awards of Excellence entries due January 16, submissions due February 20. For more information, call Robin Lee at the AIA at 202/626-7390.

Please submit information for exhibitions, conferences, and competitions at least six weeks prior to publication date. ■

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2. Publication number: 132-650
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6. Annual subscription price: $59.
7. Complete Mailing Address of Known Office of Publication: 1221 Avenue of the Americas, New York, NY 10020.
8. Complete Mailing Address of Headquarters of General Business Offices of the Publisher: Same as above.
9. Full Names and Complete Mailing Addresses of Publisher, Editor, and Managing Editor: Publisher: Elaine Shusterman, 1221 Avenue of the Americas, New York, NY 10020; Editor: Robert Ivy, FAIA, 1221 Avenue of the Americas, New York, NY 10020; Managing Editor: Kate Norment, 1221 Avenue of the Americas, New York, NY 10020.
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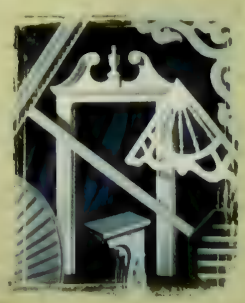


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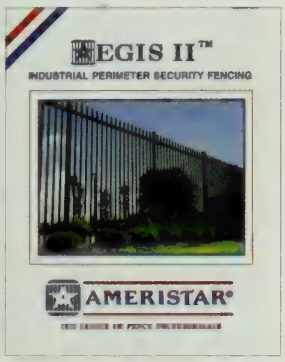


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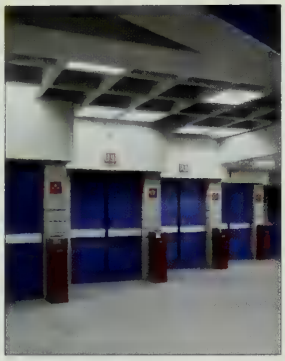


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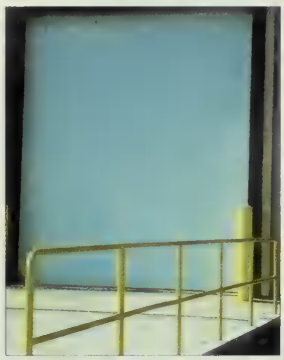


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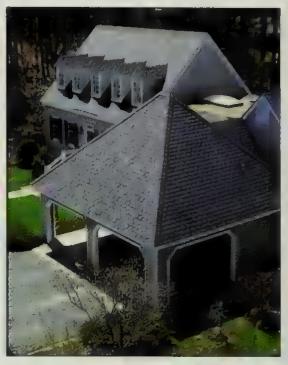


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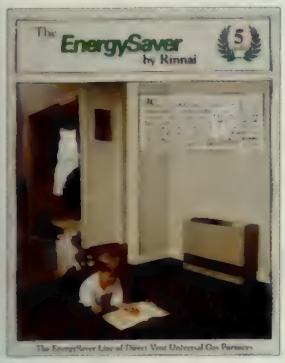


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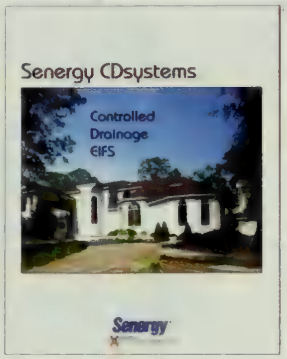


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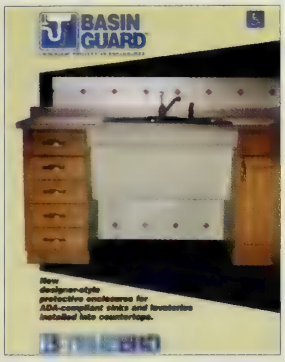


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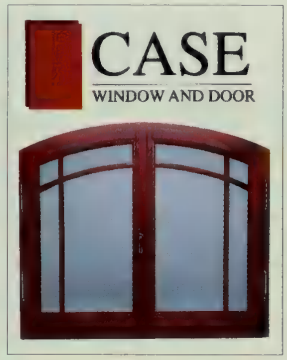


DuraClassic Poly/Marble load bearing columns are affordably priced and backed by a lifetime warranty. Other quality products include authentic architectural wood columns for paint or stain, fiberglass columns and synthetic stone balustrades and columns. For a free catalog call 800-963-3060.

Melton Classics, Inc.

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At Case, we combine American craftsmanship with German engineering to produce windows and doors, window walls and rolling glass walls, for luxury residential and commercial projects. A wide selection of wood species and metal cladding make possible countless interior and exterior finishes. Superior hardware systems and multiple glazing options provide security, acoustical control, and protection from the elements.

Case Window and Door

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MantelartTM Fireplace Systems



Detailed to perfection, an elegant one-piece cast stone mantel forms the foundation of this striking fireplace. Adding a truly distinctive touch, a Brickstone Studies Limited Edition Mural crowns the mantel. Choose from several styles available through our dealer network or direct from Brickstone Studios. For the ultimate in exceptional fireplaces call Brickstone Studios (800) 449-6599.

Brickstone Studios

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Utilizes CertianTeed's exclusive Super Shangle® construction with two full-size base shingles, resulting in virtually four layers of shingled protection and 8-inch exposure when applied. This super-heavyweight shingle (355 lb per square) also features a unique chamfered cut for scalloped appearance. Fiber glass composition. UL Class A. Lifetime limited, transferable warranty. Algae-resistant. Meets ASTM D3462 Tear Strength.

CertainTeed Corporation

CIRCLE 173 ON INQUIRY CARD

Wood Products Promotion Council



A brochure produced by major N. Amer. wood products trade associates highlights the many environ. benefits of wood. The brochure, titled "You'll never run out of ideas, we'll never run out of trees," offers info on reforestation, efficient use of nat. resources, recycling, energy use & other environ. issues for architects, engineers, builders, remodelers, furniture manufacturers, & retailers. For a free copy of the brochure, fax Wood Works at (503) 224-3934.

Wood Works™

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Decorative, Thin-Film Intumescent Fireproofing



Certified for beams & columns for ratings up to 3 hrs.! A/D Firefilm permits the designer to use the appearance of exposed steel with the steel fully protected from fire. Applied as a thin-film coating 0.4 to 3 mm (0.02 to 0.12 in.) thick. During a fire it expands to form a meringue - like layer up to 100 mm thick. The topcoat is avail. in a wide choice of colours. 416-292-2361. 1-800-263-4087

A/D Fire Protection

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PG Bell Porcelain Meets Your Budget



Competitive pricing is only one benefit of cladding with porcelain enamel. Complete color and gloss retention contribute to the unsurpassed longevity that porcelain provides. With the ability to hold the tightest curves, complex forms are only limited by your imagination. Call Jennifer for your free CAD details on disk. PG Bell Architectural Porcelain 800-663-8543.

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Omega Fence Systems

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Hadrian's double pan panels & doors are honeycomb-cored for impact resistance. Available in anti-corrosion zinc-coated Galvanneal sheet steel or Stainless Steel, panel parts are permanently sealed for strength & hygiene. Eighteen standard colors in easy maintenance powder-coated polyurethane, plus graffiti resistant textured finishes. Door latch meets handicapped requirements. Call 216-974-7128 1-800-536-1469

Hadrian Inc.

CIRCLE 178 ON INQUIRY CARD

Pan-Tech



manufactures composite building panels in a variety of different face materials and finishes. Aluminum: two, three and four coat Kymar finishes, anodized, colour & brushed. Stainless Steel: 304, 316 grades, #4, #8 finish, coloured stainless and patterned. Zinc: Rheinzink preweathered. Porcelain: for Spandrel applications. Copper: prepatinated.

Pan-Tech, Inc.

CIRCLE 179 ON INQUIRY CARD

Interior Components

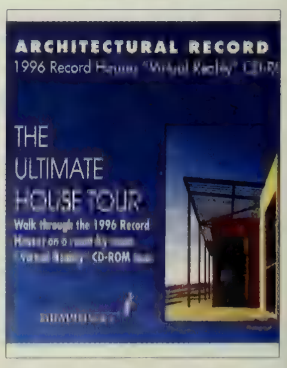


Design I is our new 60 page catalogue showing architectural components with existing molds, including columns, capitals, domes, moldings, light coves, ceiling & wall panels, etc. All items available in Formglas G.R.G. (Gypsum), QuarryCast® and MetalCast®. Request our printed version or, view our web site: http://www.formglas.com Tel: 416-635-8030 Fax: 416-645-6588 Email: djohnson@formglas.com

Formglas Inc.

CIRCLE 180 ON INQUIRY CARD

Record Houses "Virtual Reality" CD-ROM

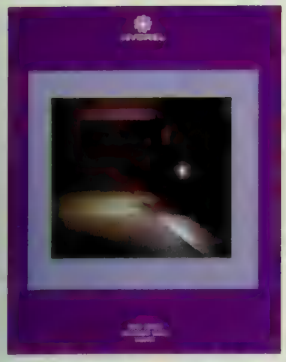


A room-by-room tour, with architects discussing their creative and product decisions. Click and zoom and move around objects via QuickTime©VR. Architectural Record worked closely with Graphisoft©, using ArchiCad©, to produce an interactive CD-ROM house tour that includes photos and excerpts from the articles from the April '96 issue. For Windows and Mac. $19.95. Record Houses CD-ROM, Rm 1448, 1221 Ave of the Americas, NY, NY 10020.

Record Houses

CIRCLE 181 ON INQUIRY CARD

Avoid Annoying Glare 10 to 1 MH spacing



Hydrel's new 9600 Series Recessed Wall-Step Lights with improved beam patterns and unique internal glare control achieves remarkable 10 to 1 mounting height to spacing ratio. Patented sealing technology and modular construction provide air cooling for reduced size and simple installation/maintenance. Up to 100 watts HID. Hydrel, Sylmar, California.

Hydrel

CIRCLE 183 ON INQUIRY CARD

In Grade Up Lights



This 36 page catalog covers the new, innovative 9000 series Ingrade Lighting fixtures. See how modular design makes a difference in performance, installation, maintenance, and durability. Available in a variety of configurations, this series accepts lamps to 175W HID, 250W incandescent. Architectural and landscape illustrations include recommendations for the most common applications. Hydrel, Sylmar, California.

Hydrel

CIRCLE 182 ON INQUIRY CARD

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Hanover Lantern designs & manufactures high quality heavy duty cast titanium/aluminum commercial grade decorative lighting fixtures, poles & accessories. A selection of design styles, light source options, light distribution systems, mounting options, computer generated photometric data plus a custom design service are available to the architect or engineer. 470 High St., Hanover PA 17331. T: (717) 632-6464 F: (717) 632-5039

Hanover Lantern

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Hubbell Lighting, Inc.

CIRCLE 185 ON INQUIRY CARD

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Ushio America, Inc.

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The "ID Series" is specifically designed for lighting Computer Environments with 8' ceilings where low reflector brightness is essential. Enjoy the comfort of indirect light with nothing below the ceiling plane. The precisely stepped and formed reflectors in our new "ID Series" provide revolutionary glare control. The 2'x2' and 2'x4' fixtures utilize efficient, long life 40, 50, or 55 watt Biax fluorescent lamps. Call (818) 579-0943.

Engineered Lighting

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The AR5 Interior Luminaire by IRIDEON

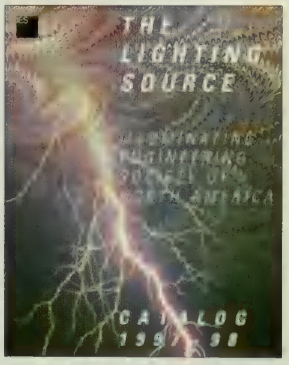


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Irideon, Inc.

CIRCLE 188 ON INQUIRY CARD

Illuminating Engineering Society of North America

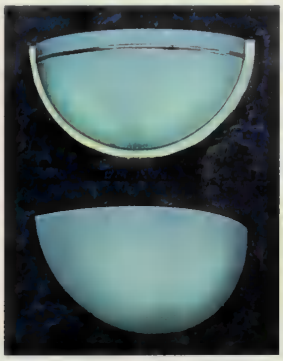


The LIGHTING SOURCE by the IESNA offers a vast selection of standards and publications for the lighting professional. The IESNA has 10,000 members and offers many benefits. If you wish to receive a complimentary copy of the catalog, please call Albert Suen at T: (212) 248-5000, F: (212) 248-5017, or e-mail bethbay@aol.com.

IESNA

CIRCLE 189 ON INQUIRY CARD

SHPERIS Wall Sconce

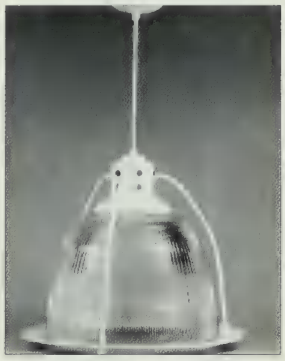


SPHERIS Wall Sconce provides direct/indirect lighting and an attractive luminous glow from a translucent faux alabaster diffuser. It is ADA compliant and available plain or with brass accents. Other finishes and white acrylic diffusers available. SPHERIS uses 2 PL-13 lamps or an Osram Sylvania DULUX F 36-watt fluorescent lamp. Excelite Inc., 4500 6th Ave., Altoona, PA 16602. T: (814) 943-1155. F: (814) 946-0157.

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Charles Loomis, Inc.

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"FANCY FREE", the 1997 APEX lighting award winner. The concept of this new design was to create an aesthetic, 12" square recessed compact fluorescent downlight that eliminates the harsh visual contrast between the ceiling and the fixture aperture, and offers designers numerous variations in lighted appearance. At the heart of this innovation is the design of the translucent louver cell assembly. T: (718) 456-7400 • F: (718) 456-5492 ▪ http://www.neoray.com

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Tivoli Industries, Inc.

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Sun Valley Lighting manufactures an extensive line of Standard & Custom cast aluminum lighting poles & fixtures in all period styles. Our 50 years of design & manufacturing experience provides you with unexcelled product quality. Our staff of designers, engineers, and tool makers are here to assist you. Our in-house foundry assures quality and prompt delivery at competitive costs.

Sun Valley Lighting

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Tortran, Inc. presents the EXO-TRACK™ low voltage halogen lighting system. Straight, rolled into circles, or shaped into undulating forms, the Exotrack provides accent and illumination for miniature chandeliers, exciting free-form sculptures, and can even be suspended in space. For more information call (203) 367-5188.

Tortran, Inc.

CIRCLE 197 ON INQUIRY CARD

OFFICIAL PROPOSAL

REQUEST FOR QUALIFICATIONS

To Develop a Ten-Year Master Plan For the Historic Washington, D.C. Union Station

The Board of Directors of the Union Station Redevelopment Corporation (USRC) has directed USRC to seek qualifications from interested firms to do a ten-year master plan for Union Station. October 1998 will mark the ten year anniversary of the redeveloped station. The Board wishes to ensure its continued success through the development of a master plan.

Union Station is a superbly restored historic mixed-use urban transportation center located two blocks from the Nation's Capitol building. The station serves as a hub for Amtrak, MARC Metrorail and Virginia Railway Express (VRE) trains. Approximately 70,000 people pass through Union Station daily and it is the second most used stop on the Metro with 21,000 passengers per day. In addition, Union Station is the most visited tourist attraction in Washington, D.C. Since the Station's redevelopment in 1988, over 4 million square feet of office space has been developed in the surrounding area.

Experienced master planners who wish to enter the competition to develop a master plan for Union Station must submit a letter of interest no later than December 1, 1997. Interested parties should contact:

Mr. David S. Ball, President
Union Station Redevelopment Corporation
444 North Capitol Street, N.W.
Suite 740
Washington, D.C. 20001
Telephone: (202) 906-4130
Fax: (202) 906-4133

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Industrial Project Architect; AIA, 10+ years experience, registrable in NC.

- Proven track record of PM and Design experience for Industrial Facilities (expansions, renovations, master planning, process equipment layout, ADA, roofing, etc.).
- Strong interpersonal skills. Must have positive relationship with colleagues, clients, and contractors.

Contact: Tony Khoury, PE
The East Group
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CITY URBAN DESIGNER
CITY OF WEST PALM BEACH, FL

West Palm Beach is seeking a motivated Urban Designer to lead the newly created Urban Design/Long Range Planning Division. The Division will staff the Downtown Action Committee (an advisory review committee for downtown), draft and enforce design guidelines for the downtown and other areas of the city, administer and propose amendments to the Comprehensive Plan, draft and coordinate neighborhood plans as appropriate. Utilizes urban design principles in conducting studies and research. Makes presentations before various boards and committees including the City Commission. The selected candidate should be experienced in negotiating with design professionals, proficient in design concepts and capable in drafting architectural renderings. Must demonstrate ability to work with other disciplines. Min quals: Bachelor's degree in Architecture or Urban Planning and a minimum of five years of experience in urban design required; or an equivalent combination of training and experience. Master's degree in Urban Planning or Architecture with a concentration or specialization in urban design preferred. American Institute of Certified Planners certification preferred. Valid State of Florida driver's license is required, or ability to obtain upon employment. Send resume/application with Social Security number to: Dept of Human Resources, PO Box 3366, West Palm Beach, FL 33402. Accepting applications until position is filled. No faxes please. EOE/AA/DFWP.

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Under supervision of licensed architects directs, coordinates & exercises functional authority for programming, organizing, controlling & scheduling architectural projects including planning of interior space for commercial, residential, mixed use & for use by the government. Acts as a liaison with clients to obtain & relay relevant information & may attend & assist with client-firm negotiations. Using AutoCAD within a networked environment, prepares schematic designs & accurate drawings for the architect's review of complex projects with multiple technical professional including calculations & layout of dimensions. Researches & suggests materials to be used, makes an analysis of the architectural relationship of various parts of the design, & work out critical construction details of the entire structure. Researches the effectiveness of various materials which might be used in construction & makes recommendations thereupon. Prepares construction documents, & studies & recommends or improves construction bids or proposals. Responsible for site supervision coordination between the different tradesmen or subcontractors' work forces on-site & approval scheduling, costs & related matters. Rqmnts: Bachelor's in Architecture, 2 yrs exp in job offered or in the related occupation as Architect I (entry level). If qualifying under related exp, then related exp must include planning of interior space for commercial & residential uses. Must have exp in using AutoCAD within a networked environment. Two copies of resume, transcripts & diploma required, & evidence of AutoCAD exp. 40 hrs/wk; 8:30am-5:00pm; $33,280/yr. Must have proof of legal authority to be permanently employed in the U.S. Chicago, IL. Send 2 copies of both resume & cover letter to Illinois Dept of Employment Security, 401 S. State St., 7 North, Chicago, IL 60605, Attn: Brenda Kelly, Ref # V-IL 17608-K. An employer paid ad, no calls.

FACULTY POSITIONS VACANT

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Director, Hammons School of Architecture

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Drury College offers a bachelor's degree with design as the centerpiece of an architectural education which emphasizes theoretical, practical and liberal arts education. The Hammons School of Architecture is 14 years old and accredited by the National Architecture Accrediting Board. The humane scale of the program (approximately 200 students) and commitment to a careful integration of liberal arts with professional preparation set it apart from other schools.

Drury College is a private institution which maintains a commitment to excellence in career preparation and the liberal arts. There is an emphasis on excellent teaching, low student-faculty ratio, small classes, and opportunities for students to study abroad.

The director reports to the vice president for academic affairs and is fully responsible for the architecture school. The successful candidate will have the appropriate professional credentials and experience in teaching and administration in a school of architecture.

Interested candidates should supply a portfolio and statement of administrative and educational philosophy by December 1:

Dr. Stephen H. Good
Vice President for Academic Affairs
Drury College
900 North Benton Avenue
Springfield, Missouri 65802

TULANE UNIVERSITY
TWO TENURE-TRACK POSITIONS

The School of Architecture at Tulane University invites applications for two full-time, tenure-track appointments. Candidates should have at least a Master of Architecture or equivalent degree in their principal area of expertise, as well as an active record of teaching, scholarly and/or professional work. Position 1: The School is seeking a candidate to be the primary instructor in a revised curriculum in structural technologies. Candidates for this position should be prepared to teach three core lecture/lab courses in structural planning and analysis and either an upper level seminar course or a design studio. Please note this position is available Spring 98. Position 2: The School is seeking a candidate beginning a teaching career with the ability to teach a design studio and one other area of interest/specialization. Specific curriculum needs include: materials and methods, environmental technology, information technology, computer applications, architectural publishing and historic preservation. Please note this position begins Fall '98. Applicants are asked to submit a current curriculum vitae; names, addresses and telephone numbers of at least three academic or professional references; and a letter of interest and intent describing recent professional, research and pedagogical qualifications applicable to this candidacy. Nominations and applications for these positions will be accepted until the position is filled. Screening will begin immediately and the short-list and interview process will begin in December 1997. Rank and salary will be commensurate with experience. Tulane University is an Affirmative Action/Equal Opportunity Employer. Women and minorities are strongly encouraged to apply. Applications and inquiries should be addressed to Professor Michael Crosby, Chair, Faculty Search Committee, Tulane University of Architecture, 303 Richardson Memorial Hall, New Orleans, Louisiana 70118 (t) 504-865-5389 (f) 504-865-8798.

ASSISTANT AND/OR ASSOCIATE PROFESSOR OF ARCHITECTURE, DESIGN AND THEORY

Candidates should have a professional degree in architecture and teaching experience in design studios. Additional research in the areas of graphic and spatial explorations and a capacity to consider architectural theory as "useful knowledge" will be of particular interest to the Search Committee. The School of Architecture invites applications for this faculty position which is available in the fall of 1998. The successful candidate should have demonstrated a record of excellence in and a strong commitment to teaching. Minorities and women are encouraged to apply. Applications in the form of a letter of interest, curriculum vitae, and the names and addresses of three references should be submitted by December 15, 1997. Screening of applicants will continue until an appropriate candidate is selected. Applications should be sent to Peter D. Waldman, Chair, Search Committee, University of Virginia, School of Architecture, Campbell Hall, Charlottesville, Virginia 22903. The University of Virginia is an Equal Opportunity/Affirmative Action Employer.

FACULTY POSITIONS IN COMPUTING AND HISTORY UNIVERSITY OF WASHINGTON

The Department of Architecture at the University of Washington seeks applicants for three full-time faculty positions: Architectural History and Theory, Advanced Computing in Design, and Computing in Design and Practice. For a full description of these positions, see http://www.caup.washington.edu/html/arch/news/positions.html, or make inquiry to: Faculty Search Committee, Dept of Architecture, Box 355720, University of Washington, Seattle, WA 98195, 206-543-4180. The University of Washington is building a culturally diverse faculty and strongly encourages applications from female and minority candidates. The University is an Equal Opportunity/Affirmative Action Employer.

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Small (7 to 20-person) architectural firm in a Texas metro area (Austin, El Paso, Dallas-Ft. Worth, Houston, or San Antonio). Firms with in-house engineering and interior design capabilities desirable, but not necessary. Reply to Box BO-8273, AR.

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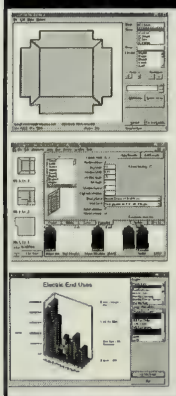
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Consult individual sections for details.

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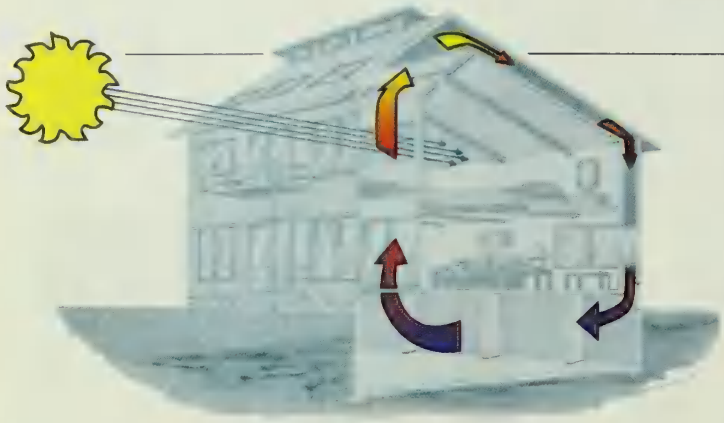
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THE FUTURE A dynamic building is positioned to meet the energy crisis of the next century.

BY JOAN BLATTERMAN



This solar porch is the "thermal battery" powering an Enertia home.



Solar-derived heat circulates itself within the home.

The log cabin of the 21st century? A spacious, 3,000-sq-ft home that generates its own heating and air-conditioning? A structural envelope that can maintain an even, comfortable interior—cool in summer and warm in winter, even in a rugged climate like Kansas—without either furnace or air conditioner?

That's what Michael Sykes claims for his Enertia building system. The Wake Forest, North Carolina, engineer/entrepreneur has developed a sustainable, closed-loop building system made entirely of renewable and recycled materials. The homes are constructed with double walls of solid wood timbers that combine structural and thermal storage characteristics. In contrast to the myriad components of a stick-built home, with nails, vapor barriers and tar paper, synthetic insulation, OSB or other sheathing, tape, siding, and paint, the Enertia home has walls made of squared logs tightly connected with 10-in. Ardox spikes, gaskets, and a connecting spline of recycled polyethelyne.

The wood used, Southern yellow pine, is a resinous species that grows to maturity in 30 years, and is planted at the rate of 3.1 million seedlings per day by timber interests in the southern U.S. A building material created by photosynthesis, pine might be a "perfect" sustainable product, one that cleans the air of pollutants such as carbon dioxide as it grows.

Sykes uses this local resource in a unique way, assembling logs into a dynamic building envelope. Essentially, it is a house within a house, a double-walled building that encourages air movement completely around the structure in an interior cavity.

Solar-heated air moves on its own from an atrium of south-facing windows up over the interior "roof" of the house. As this air cools, it sinks down past the north side, and over the concrete slab of the ground level. The mass of the 6-in.-thick walls and solid-timber rafters gains, holds, and releases heat throughout the night-day cycle, a phenomenon of thermal inertia. The house becomes a living and breathing thing, says Sykes.

Siting is vital

Site parameters—topography, seasonal mean temperatures, the thermal capacity of the glazing selected—are reflected in the design of individual Enertia homes. Large window-walls and clerestories are placed to admit the largest amount of low-level solar radiation in winter, and the least amount of higher-angled summer sun. The foundation level is bathed in sunlight from windows in its partially excavated southern side. Houses must be oriented to a southeast-to-southwest solar "window"; however, the Enertia building is not as sensitive to south as other solar homes. The house depends for its heating on the solar energy falling on it, and for its cooling on the geothermal reserve of the earth below it. The concept is a new approach to home construction, and the structure must be built fresh from the ground up. Components cannot be integrated into or grafted onto an existing home.

Enertia efficiently uses solar power in two ways: passively, receiving the sun's energy, as in a traditional solar home; and actively, using solar heat as the driving force that circulates that energy. Though some configurations may require a small motorized fan or geothermal heat pump, most homes—even very large ones—can derive all needed heating and cooling without any utility-grid power at all.

Architectural aspects

Floor plans of Enertia homes are generous, open, and flexible. The exterior face of the squared logs can be milled to mimic wood sidings such as lapped cedar planks or rough-sawn boards; roofs can be metal, asphalt shingles, shakes—whatever is desired. The heavy timbers used have an ignition point far above that of framing lumber, and the Enertia house can qualify for lower fire-insurance premiums. The company sells plans for homes from 2,000 to over 4,000 sq ft. Custom designs are also available; Enertia homes as large as 6,500 sq ft are being built. Homes may include such design elements as Craftsman-style corbels, kingposts, balconies, and projecting framework that are natural to the timber structure. Once designed, homes are milled to order and the wood is shipped numbered for fast on-site erection on a prepared foundation.

The future of the future house

The inventor anticipates infusing the wood with desiccant salts to further lower the humidity of the interior air, thereby improving the assembly's cooling performance in tropical climates. The firm now uses CAD to translate site-specific criteria—log dimensions, glazed openings, even cut-outs for junction boxes or shelving—into detailed shop drawings. The next step will be computer-aided manufacture, using site criteria to direct the actual milling of parts from a solid block of wood. The architectural and embodied-energy aspects of this "thermal flywheel" are demonstrated in the company's Web site at http://enertia.com. ■

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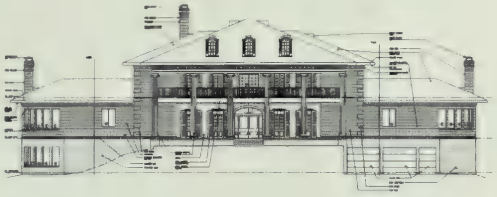
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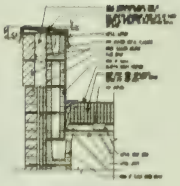
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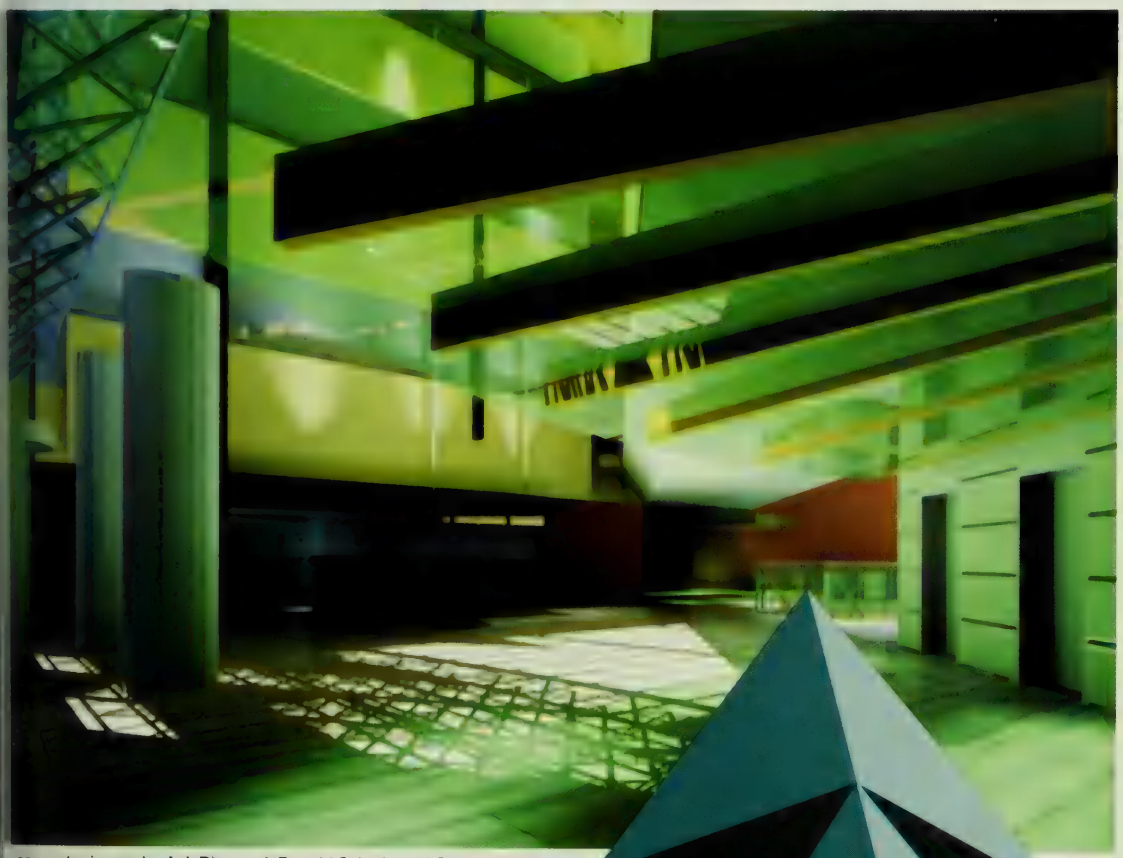
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Details



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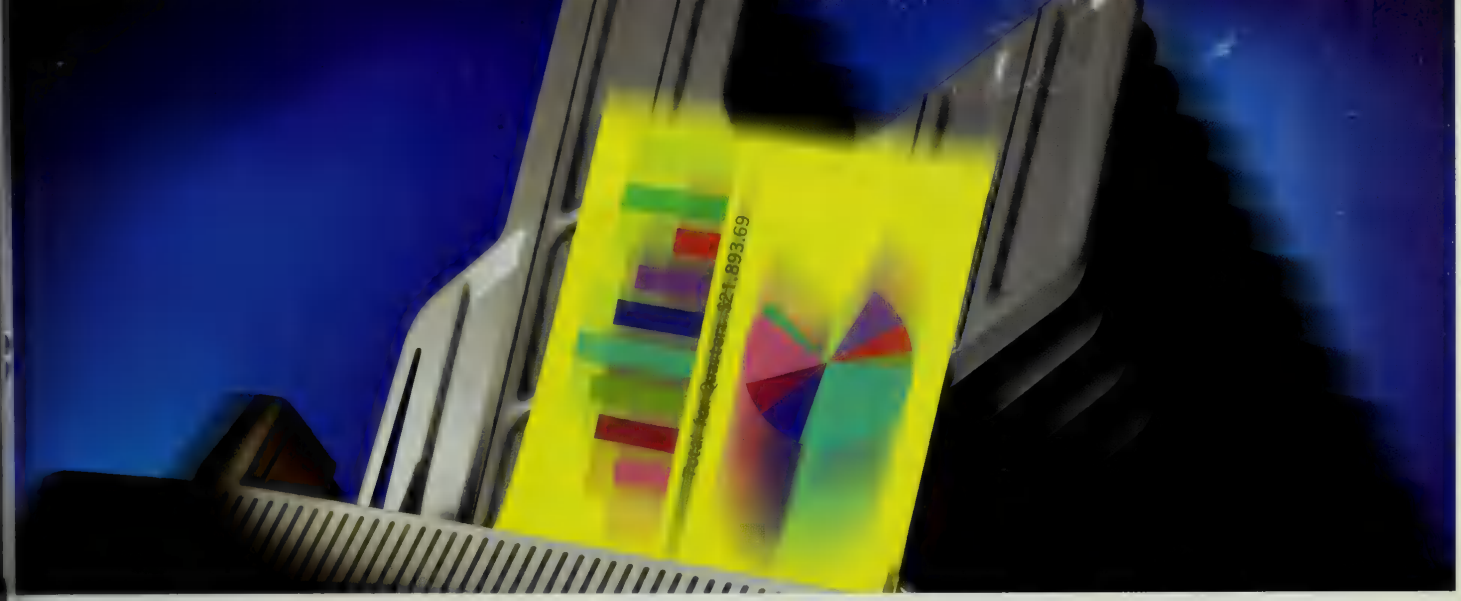
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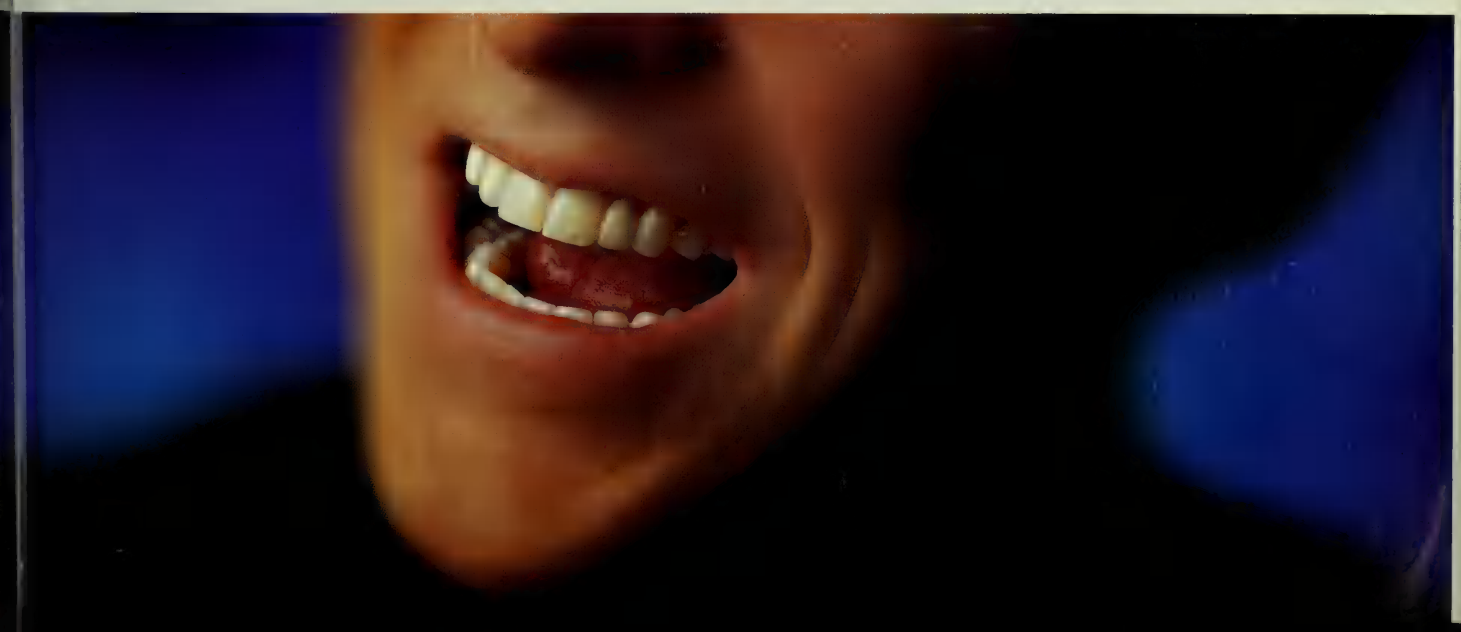


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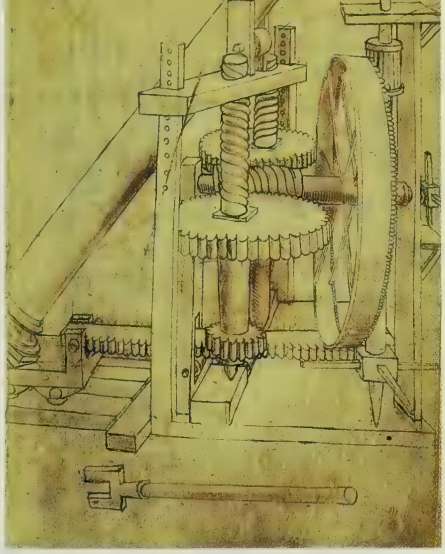
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Above: *Column lifter designed by Francesco di Giorgio in the 15th century, from "Mechanical Marvels" (page 52). Photo courtesy Institute and Museum of the History of Science/Florence.*

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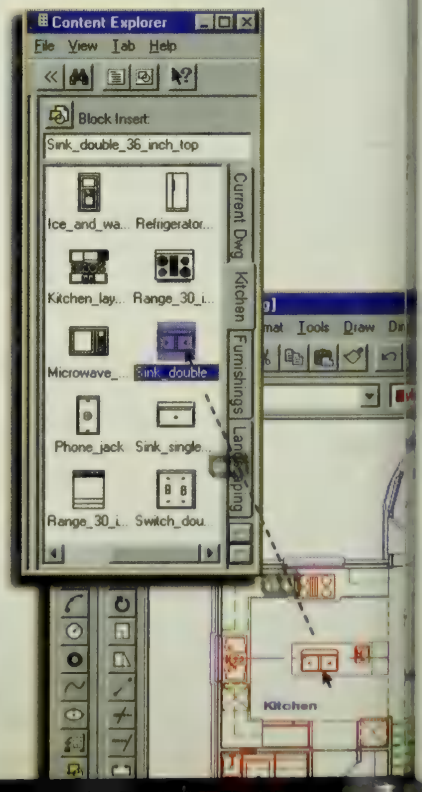
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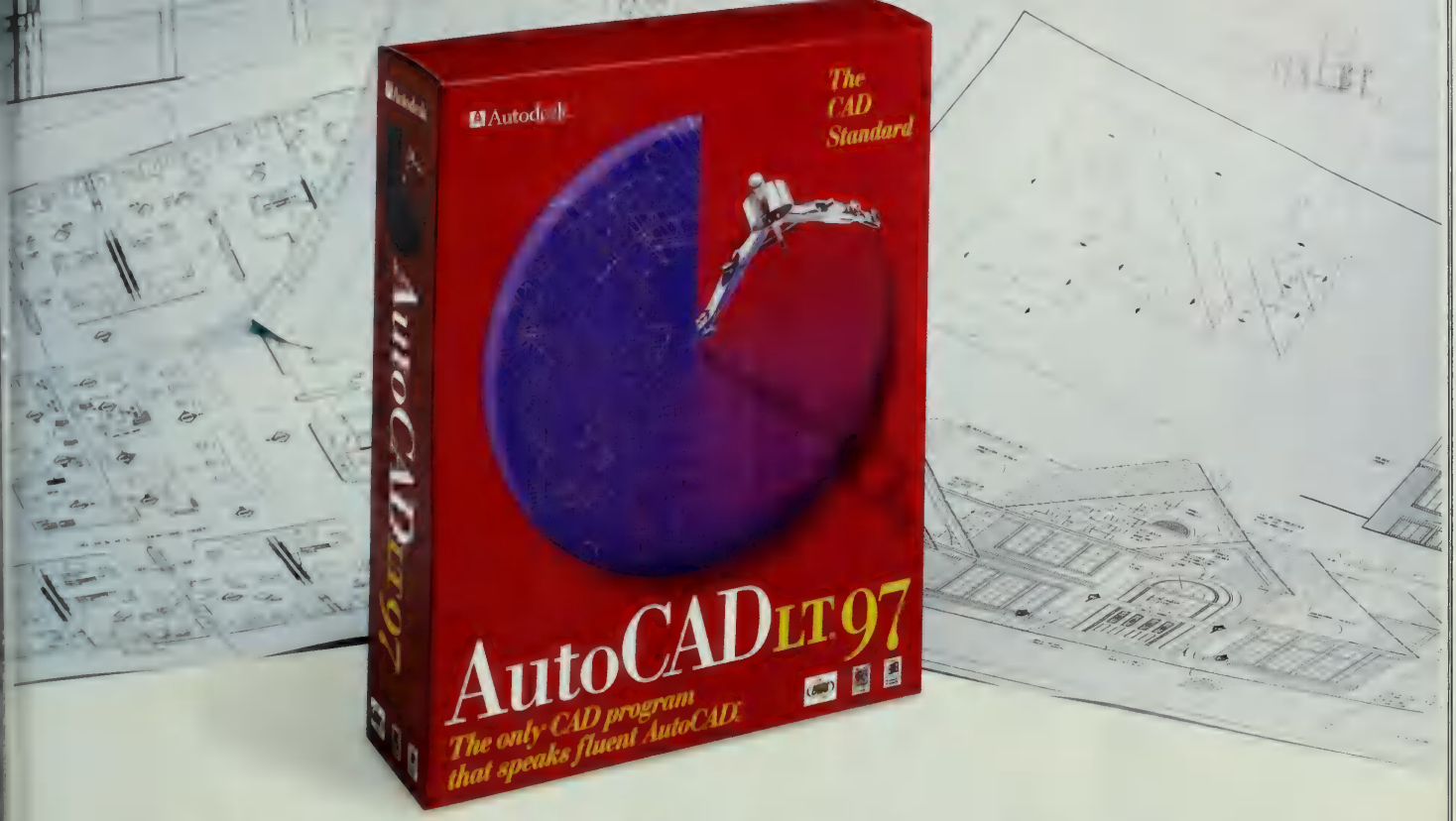
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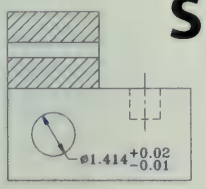
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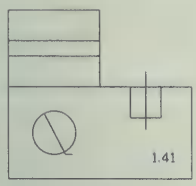




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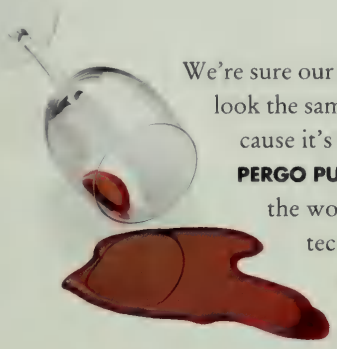
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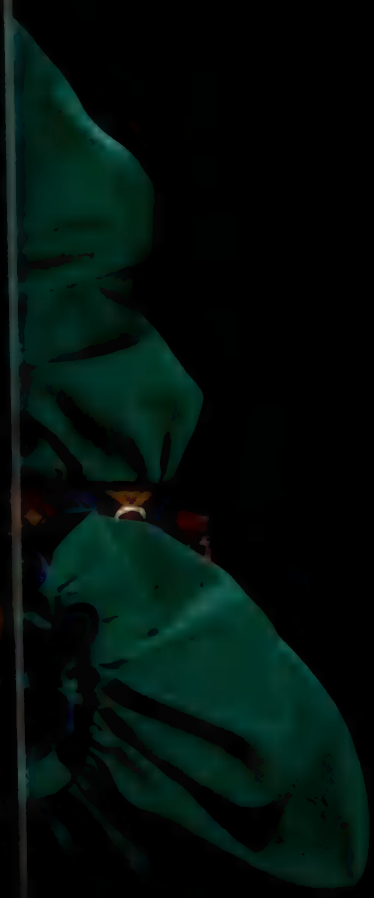
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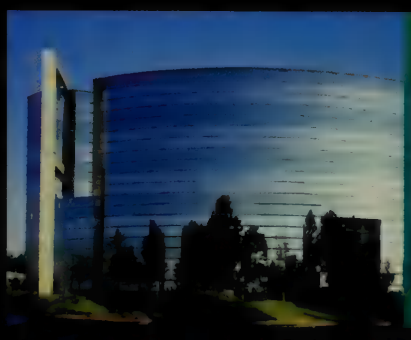


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EDITORIAL

From Infatuation to Commitment

BY ROBERT A. IVY, FAIA

Ask a school superintendent or a CEO how architects spend most of their time, and their likely answer is "designing buildings and preparing construction documents." These two activities are highly valued because they invest projects with intellectual equity; they are also where architects earn the majority of their fees. In the popular consciousness, even among enlightened clients, the image of the architect is irrevocably linked to design, with its late hours, caffeine, and the pursuit of the grand idea, all to produce a real building—a hefty product for the dollar—as opposed to a service.

But not all architects' efforts result in tangible objects. Some brainpower is applied to planning and problem solving. Today architects derive approximately 20 percent of their revenues from activities outside the design/construction base: according to a recent survey, 15 percent comes from work that occurs before any formal design begins; post-construction services account for another 4 percent. Architects' total offerings constitute a smorgasbord of services, including site selection, programming, feasibility studies, master planning, and facility management.

That 20 percent may grow. If architects can ally themselves with clients, developing long-term relationships that emphasize client service rather than individual buildings, their opportunities for continual employment expand exponentially. Clients will always turn to trusted advisers when faced with capital improvements. In this scenario, a school district could provide a lifetime's work; an established hospital campus, whose buildings may be designed over a period of 100 years, could benefit from a constant hand during its evolution. All are opportunities for the architect.

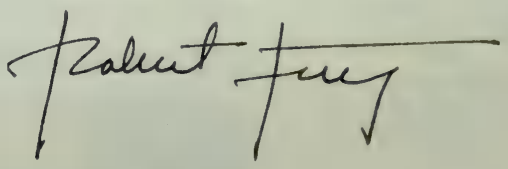
Long-term professional relationships do not happen automatically. They require effort and are in many ways contrary to the traditional model of an architect-client relationship, which is a bit like falling in love. The pattern is familiar: early infatuation and mutual discovery yield, over time, to self-absorption, increasing aloofness, and divorce or separation just as the project ends. Millions of dollars at stake only compound the anxiety, and lawyers don't help. By dedication day the architect is consigned to the status of former partner, free to think about tomorrow's presentation for another job.

Long-term relationships demand a cultural shift, adjusting practice to meet contemporary needs. If architects want to assist with facility management, then they will have to provide documents that can easily be updated and accessed by owners, engineers, and other consultants. If they offer feasibility or financial studies, they need tools. Technology can help.

Architectural education will need to be adjusted to prepare architects for what one group has labeled a continuum of services. Individuals should plan careers that engage a variety of talents and interests, not just design. Training in business, financial, and legal disciplines grows more important in the new model.

The American Institute of Architects has already embraced this vision, altering its contract documents with a range of offerings and de-emphasizing the term "extended services," which implied that certain segments of work lay outside the architect's ken. Their Practice and Prosperity initiative began a discussion that reflected both hope and a new reality of practice.

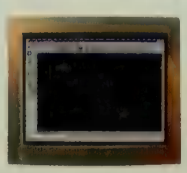
The pragmatic new breed of architects will still seek to design and construct new buildings. But they will be less eager to fall in love with their clients than to build mature relationships, less intent on giving a client a building than on hearing what a client really needs. Ultimately, their efforts can sustain the practice of architecture for the years to come—for themselves, their companies, and the public they serve.





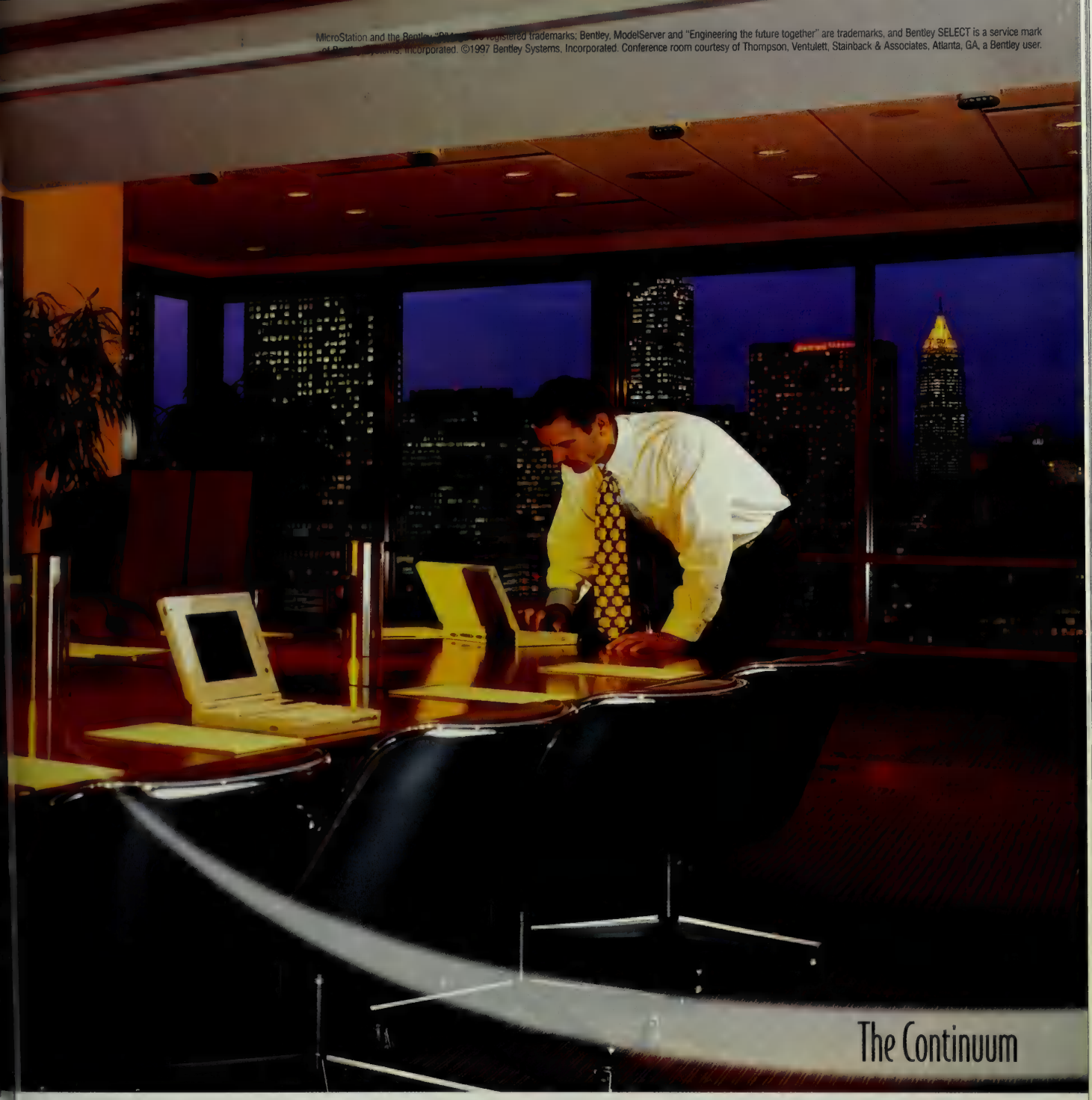
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LETTERS

"Cultural imperialism" in Bilbao

The day after I read your review of Frank Gehry's Guggenheim Museum in Bilbao [October, pages 74–87], my local newspaper published an account of separatist demonstrations in that city that were organized to protest the "cultural imperialism" of the museum.

The protesters' criticism is directed as much toward the Guggenheim Museum and Bilbao's civic administration as it is toward the building. Nonetheless, such an outcry puts into question the social and cultural relevance of the building. Gehry, like Antoni Gaudi, may finally be judged a courageous "genius," to quote your article; but, like Gaudi, he may also be judged a historic oddity whose buildings had little influence on the evolution of an appropriate and practical architecture for his time.

—James A. Gresham, FAIA
Tucson, Ariz.

Pedestrian malls can work

The failure of many main street pedestrian malls, including the one in Kalamazoo, Michigan, which was recently returned to vehicular use [October, page 40], stems from the failure to follow through with the original vision. Successful planning requires more than brick pavers, kiosks, benches, fountains, and trees. Residential development on the upper floors of main street buildings is paramount. The mall in downtown Charlottesville, Virginia, for example, is employing this strategy quite successfully; pedestrians on the mall include residents and patrons. Not everyone wants to rely on a car and live in a vinyl box in suburbia.

—Gary Scott Henley, AIA
GSH Design
Richmond, Va.

Traveler's diary

Having flown to and from the new terminal at Washington's National Airport [October, pages 88–95] at least a dozen times since its opening, I have concluded that many features of the building by Cesar Pelli sacrifice function for style.

The building is beautiful. I know, because I usually find myself walking through much of it to reach my flight. The length of the building does not support visiting the shops and restaurants scattered throughout the complex. The installation of mechanical devices, such as people movers, does not seem possible without covering the artwork in the floor.

For a design team that spent two years visiting airports, it is hard to believe that the security clearance areas at National were modeled on the best of the lot. They are cramped, congested, and inadequately planned for the inspection of computers and other electronic equipment. Security clearances at each concourse further discourage the use of the main hall. Everyone who enters the airport must pass through the security station.

The restrooms are another example of poor planning. The entryways, which are shaped like a rectangular U, are so narrow that two people cannot pass while carrying luggage.

It is disappointing to see $350 million spent on a facility in which the design team, in my opinion, did not give adequate thought to basic planning issues. I am not an architect, but I do understand the importance of knowing the customer and paying attention to the details.

—David Taylor
Nashville, Tenn.

Rudolph opened eyes

I enjoyed Robert Ivy's editorial on Paul Rudolph and architectural myopia [October, page 17]. I was one of the young architects who fought my way into Rudolph's New York office. After graduating from Auburn University in 1973, it was the ultimate post-graduate experience.

Rudolph's architectural genius was far-reaching, but it was his ability to continually teach, no matter how large or small the project, that shaped my career. My primary role in his office was to sharpen the colored pencils with which he sketched his astounding drawings. From blank tracing paper appeared architectural spaces that one might dream about. The knowledge I acquired from my time in Rudolph's office is with me even today. I will always be grateful for his largesse.

—Preston T. Phillips, Architect
Bridgehampton, N.Y.

Getting wired

Thank you for the kind words about our office in "Collaboration by Wire" [September, pages 131–37]. I want to clarify one misconception with respect to the use of an "old-fashioned" network. The network in question was not owned or operated by Moore Ruble Yudell and the firm was not responsible for the poor performance of the network. It was, in fact, a commercial network used by the entire design team. Our decision to use America Online was not in any way a reflection of dissatisfaction with Moore Ruble Yudell. We have enjoyed an excellent working relationship with them for years and expect to continue to work with the firm for many years.

—David A. Mintz
David A. Mintz, Inc., Lighting Consultants
New York City

Managed care for wood

Architects, builders, and developers need to be better informed regarding the use and availability of certified wood products. We are criticized constantly because we use old-growth timbers and/or contribute to the loss of ecosystems in the process of building. It is important to remember that wood is a renewable resource. The problem lies not in the use of forest wood products, but in how timberlands are managed. Wood certification programs and facilitators have developed sustainability criteria for the proper management of timberlands. The "chain of custody" of certification begins with the forest land owner and ends with the manufacturer. Consumers can purchase wood from a certified source and be assured that it was harvested in an ecologically responsible manner.

Certification programs have gained support from several organizations, including the Rainforest Alliance and the American Forest and Paper Association. With such programs in place, shouldn't it be part of our job as architects to specify certified wood products? For a directory of such products, call the Forest Products Buyers Group and Good Wood Alliance, two groups that have recently joined forces, at 503/590-6600.

—Lauren R. Broder
Conger Fuller Architects
Aspen, Colo.

Corrections

Space limitations in the October story on the Business Week/Architectural Record Awards did not allow for the inclusion of complete project credits. For Gemini Consulting's offices (page 59), Baron + Hammer Architects served as the owner's representative. The vice-president of Shawmut Construction, the construction manager for the project, is Thomas Goemaat. For the Nortel Brampton Center (page 64), the team for Hellmuth, Obata + Kassabaum included senior project designer Kathrin Brunner. The team for Bregman + Harmann Architects, the architect of record, included Paul Tan de Bibiana, Yvonne Yip-Campbell, and Wanda H. Barrett.

Space limitations prevented the publication of full identification of the retail interior that appeared on page 139 of the October issue. The photograph was of Sparky's on City Walk, in Universal City, California. The architect was Choy Associates, with Barton Choy, AIA, principal in charge.

RECORD may edit letters for grammar, style, and space availability, taking care not to change the author's meaning. Letters sent by post or electronic mail must include the sender's address.

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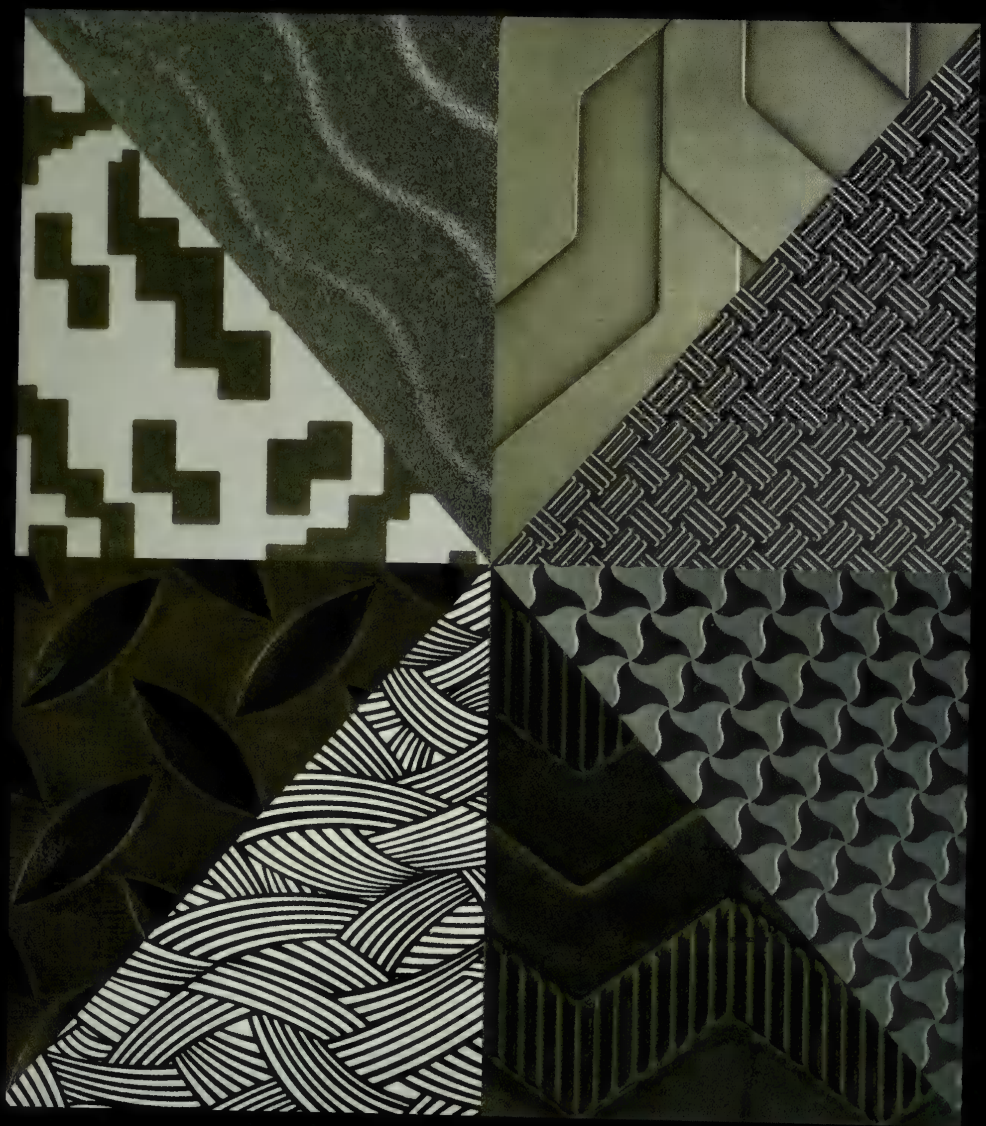
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SPEAK OUT "Invisible architects" are all around us.

STEVEN WINTER, FAIA



Steven Winter, FAIA, is president of Steven Winter Associates, a building systems research and consulting firm with offices in Norwalk, Connecticut, and Washington, D.C.

Get a group of architects talking about the profession and sooner or later the notion of "diminishing influence" will arise. Construction managers, general contractors, plus a growing assortment of players in areas like acoustics, lighting, roofing, curtain walls, glazing, and specifications, are knocking architects out of the action, you will hear.

True, the traditional role of the architect may have been stunted lately, but architects with nontraditional practices are increasingly involved in the industry in ways that are as yet unsung.

A new breed of professionals specializing in energy performance, sustainable buildings, accessibility, and CAD are showing how architects can have an impact on the built environment, albeit from behind the scenes. These "invisible architects" are involved in residential, commercial, and institutional design for a variety of clients.

Take, for example, buildings and energy. In the early 1970s, architects were leading the field in making buildings more energy-efficient, showing clients that buildings did not have to be energy hogs to function comfortably.

Today the profession is less dominant in the energy field, but the work of architects is still important and needed. One way to exert influence is to work directly with utility companies, finding ways to cut energy loads in new buildings so that consumption demands remain manageable.

Architects can provide valuable counsel by reviewing designs on behalf of utility companies in advance of new construction, and suggesting cost-effective ways to make new buildings more efficient. It may not be glamorous work, but by improving the performance of new structures architects can help utilities avoid constructing new plants.

As the "green architecture" movement continues to attract attention, practitioners of traditional design are increasingly interested in making their buildings environmentally sound. Clients are asking for better-performing buildings, with an eye toward lowering life-cycle costs. (See Technology story, page 135.) This presents more opportunities for invisible architects to work with design architects both to improve energy performance and to lessen environmental impact. Such work should happen early in the design phase to avoid the cost of undoing bad decisions later on.

Local, state, and national officials are looking to architects to formulate and direct research that can have an impact on energy use. As an example, the "Building America Initiative," a multimillion-dollar research program sponsored by the United States Department of Energy and the National Renewable Energy Laboratory, is finding ways to improve the construction quality and energy performance of conventional, mass-market homes. Architects involved in this initiative are working directly with home-building giants like Ryan Homes, Del Webb Corp., and Beazer Homes to research, design, and construct energy-saving prototype units to achieve better energy performance in different climates across the country.

The federal government is the architectural profession's largest single client. The General Services Administration (GSA) wants to educate its own project managers to be more aware of building-energy use. The people at GSA are responsible for hundreds of millions of dollars in construction each year. Invisible architects can run workshops for federal project managers, showing them how to design and construct new government facilities to be more energy-efficient.

Work like this may not land you on the cover of an architectural journal, and your name may not even appear on the building credits. But by pursuing such nontraditional practices, architects from varied backgrounds are working with all kinds of clients throughout the profession, making a difference in large and small ways.

Look up and you will see that architects are having a bigger impact on the built environment now than ever before. Invisible architects are all around us. ■

Contributions: *If you would like to express your opinion in this column, please send submissions by mail (with a disk, if possible) to Speak Out, Architectural Record, 1221 Avenue of the Americas, New York, N.Y. 10020; by fax to 212/512-4256; or by E-mail to ellen_popper@mcgraw-hill.com. Essays must not exceed 700 words. The editors reserve the right to edit for space and clarity. Where substantial editing occurs, the author will receive final text approval.*



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CIRCLE 10 ON INQUIRY CARD

MENTORS Two questions for an electronic age: bridging the CAD generation gap and ownership of digital documents

Jerry A. Laiserin, AIA, is an architect and a strategic technology consultant. He helps architects, engineers, and facilities managers combine new technologies with traditional business and practice strategies.



I am a principal in a mid-sized firm. The associates are computer-literate, but I am not. We used to have "desk crits," but that doesn't work on the PC screen. I'm increasingly uncomfortable managing and reviewing drawings and details that exist only on computer, while the younger folks are getting frustrated with plotting out the work for me to mark up on paper. How can we bridge this gap?
—unsigned

Jerry A. Laiserin, AIA, responds: The "technology generation gap" you describe is a growing chasm that neither side seems able to bridge. Yet what seem to be technology issues frequently relate instead to practice concerns, firm culture, and organizational dynamics.

First, distinguish computer literacy from computer fluency. Unless you are a regular hands-on user, no one expects you to be fluent in any software, but a principal whose name and seal appear on the work should know how to locate and open files, navigate on-screen drawings, and plot. Because some principals fear losing authority if they reveal their lesser computer skills, many training centers now offer CAD "overview" classes that build competence and confidence.

Next, separate technical problems from practice issues. Screen size and resolution are still inadequate for checking large-format drawings, so it is common practice to plot check sets on fast, inexpensive 11-by-17-in. printers or C-size plotters. Although computer-generated drawings can be tweaked to emulate the satisfying line weights and nostalgic lettering of the most skilled hand, guard against overdrawing that can sap the very efficiency that the computer was intended to achieve. While some practitioners bemoan the loss of hand-eye coordination in many CAD programs, others revel in the improved coordination and accuracy that is now possible.

Finally, be patient. Computer tools were first applied to construction documents, and have migrated to earlier phases of the design process. As the tools become more sophisticated, some also become easier to use. Many of the sketching, massing, and annotating capabilities that were lost in the first transition from drafting boards to silicon are now reemerging in the newest generation of architectural design software.

Our clients have begun to ask for our CAD files by modem. We want to satisfy their requests, but we are unsure about what is appropriate. Are our clients entitled to these files? Can we charge them an extra fee for this service? How can we control the use and reuse of our work while still offering digital deliverables in an expanded service?
—unsigned

Mr. Laiserin responds: An architect's drawings and specifications and the designs they describe—whether on paper or in electronic format—are copyright-protected property. When buying architectural services, clients reasonably expect to receive copies of these "instruments of service." Digital transmission does not alter these rights or expectations, but it may raise concerns about ease of duplication and reuse, detectability of alterations, and other software issues.

Therefore, when documents are delivered in electronic form, all parties must understand the uses intended by the client and permitted by the architect. These issues are best covered in a "digital deliverables specification" negotiated into the Owner-Architect Agreement. This is the place to distinguish between "basic" and "expanded" computer services and fees. For example, prototypes for chain store franchises may include terms for site adaptation and reuse of digital "originals." Similarly, because documents intended for construction are rarely well suited to facilities management, electronic customization should be contracted for in advance. The latest AIA form B-141 provides a framework for negotiating scope of services and deliverables. However, practitioners should always consult with counsel when negotiating contracts. ■

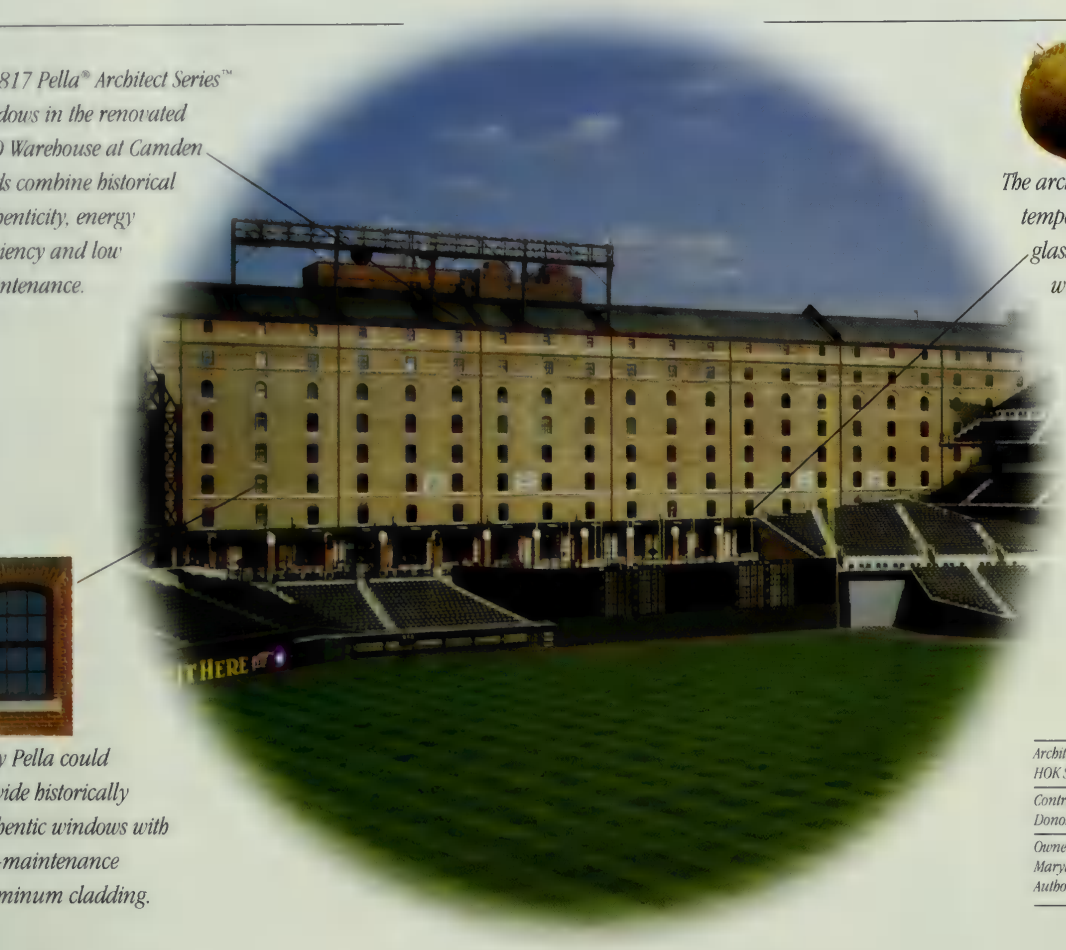
Questions: *If you have a question about your career, professional ethics, the law, or any other facet of architecture, design, and construction, please send submissions by mail to Mentors, Architectural Record, 1221 Avenue of the Americas, New York, N.Y. 10020; by fax to 212/512-4256; or by E-mail to ellen_popper@mcgraw-hill.com. Submissions may be edited for space and clarity.*

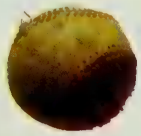
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CIRCLE 22 ON INQUIRY CARD

PULSE RECORD readers were asked: Is $980 a fair price to pay for the computerized Architect Registration Exam?

YES: 10%

Yes: After recently completing the computerized exam process, I have come to the conclusion that the price is fair. The exam can be taken at any time, in any order, and does not have to be completed within a single week. Testers can also reschedule within a few days of the exam. In my opinion, you get what you pay for: convenience and a better chance to pass the exam the first time around.
—Scott Russell
Washington, D.C.

Yes: The $980 represents both the cost of developing the exam and its delivery to testers. At least one state (New York) had a total cost for the paper-and-pencil exam that was more than $1,000.

The ability to take the exam at more convenient times and, in some cases, more convenient locations has a price. Testers no longer have to study for all sections of the exam at one time.

Furthermore, the facts included in this month's question are inaccurate. NCARB's fee for the exam was lowered, not raised. It is the delivery fee that was increased in some states and lowered in at least one state.
—Charles A. Spitz
West Long Beach, N.J.

Yes: Who says life is fair? If you want to be a registered architect, study hard, get a job, pay the exam fee, pass the test, and stop whining. If you do not want to make a few sacrifices in either your personal or professional life, perhaps you should rethink your career choice.
—David J. Dell'Agnese, Associate
Eppstein Uhen Architects Inc.
Milwaukee, Wis.

NO: 90%

No: Why does better technology routinely come at a greater cost than the technology it replaces? If the new computerized format were truly better, should it not be more convenient, conserve resources, and cost less? Rising professional costs and shrinking inter-level salaries will do little to help the profession.
—Douglas Sharp
Seattle, Wash.

No: In 1975 the cost of the exam was $165. Over the following 20 years, the cost rose roughly $23 per year. In 1996 a candidate in my office paid $650 for the exam. One year later, the cost has jumped to $980. What is the justification for this outrageous increase?

I had been looking forward to carrying my books, pencils, trace, and drawing board to the exam site. But someone had a better idea: computerize the test and, in the process, remove from it any sense of nostalgia or personal style. For all this, pay an extra $330 over last year's fees. I do not wish to foot the bill for the cost of test development, administration, or implementation of the new exam.

This debate has gone on long enough. It is time for NCARB to answer for what it has done. It is also time for the AIA to get involved.
—Harry Zawada, Assoc. AIA
Nutley, N.J.

No: The $980 is outrageously high, given the well-known facts of architects' compensation. Furthermore, NCARB's description of the grading guidelines lists "aesthetics" as a criterion by which designs are to be graded. How can aesthetics be graded by *(continued on page 151)*

This Month's Question

Are today's critics in touch with the issues affecting architects and architecture?

Architectural criticism is an embattled discipline. Architects and other readers often accuse critics of being "out of touch"—playing favorites or promoting esoteric agendas that lack relevance to contemporary society. At the same time, surveys tell us that readers seek analysis and strong points of view expressed by the press.

Are today's critics in touch with the issues affecting architects and architecture?

☐ Yes ☐ No

Copy and fax this form to 212/512-4256, or respond by E-mail to rivy@mcgraw-hill.com. Please include address and phone number if responding by E-mail.

Let us know your opinion:

May an editor contact you for comments?

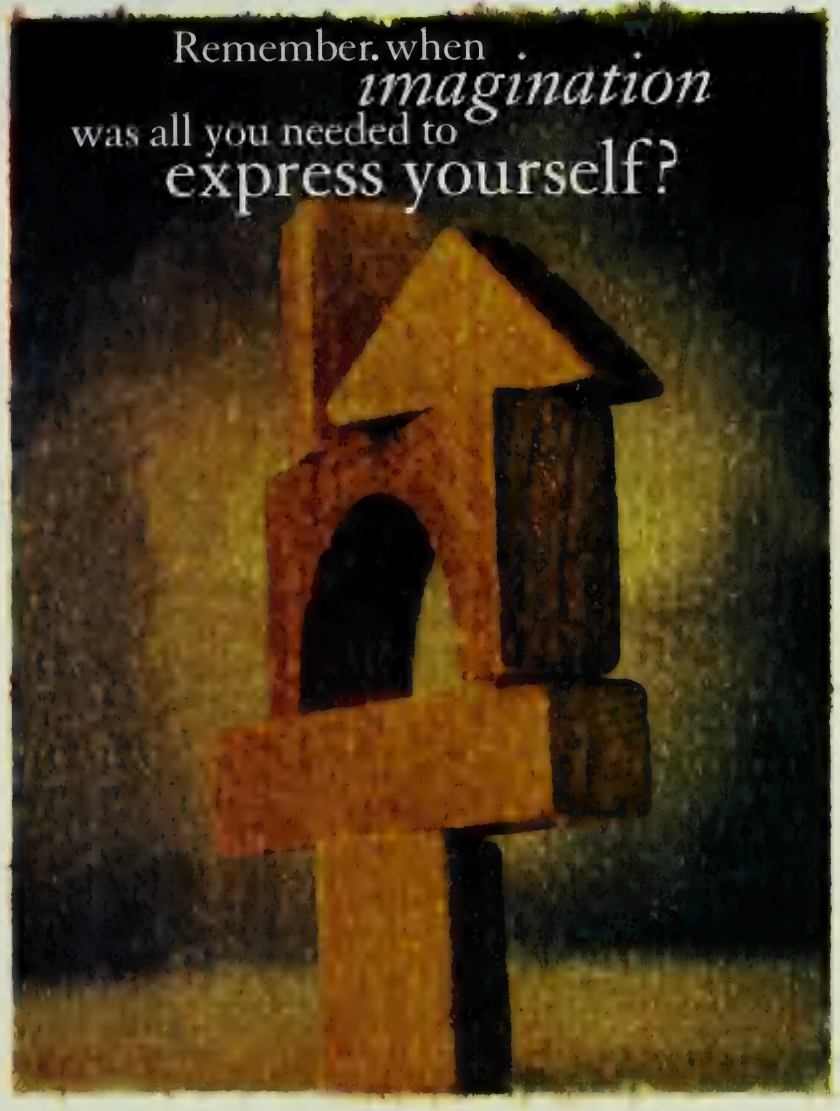
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CIRCLE 13 ON INQUIRY CARD

BOOKS Some new books on urbanism express architects' continuing frustration with the way cities are being built.

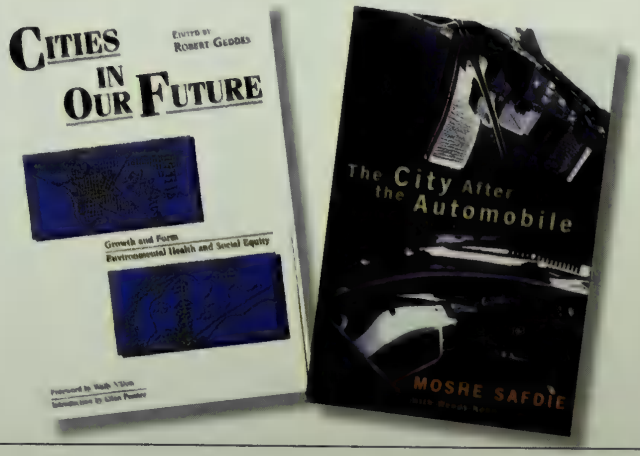
BY PHILIP LANGDON

Philip Langdon is a former senior editor of Progressive Architecture *and the author of* A Better Place to Live: Reshaping the American Suburb, *which has been released in paperback by the University of Massachusetts Press.*

The City After the Automobile, *by Moshe Safdie with Wendy Kohn. New York: Basic Books/New Republic, 1997, 187 pages, $24.*
Cities in Our Future, *edited by Robert Geddes. Washington, D.C.: Island Press, 1997, 200 pages, $23.*
The Fractured Metropolis, *by Jonathan Barnett. New York: Harper Collins, 1996, 250 pages, $25 (paper).*
The City: Los Angeles and Urban Theory at the End of the Twentieth Century, *edited by Allen J. Scott and Edward W. Soja. Berkeley: University of California Press, 1997, 495 pages, $40.*
City of the Century: The Epic of Chicago and the Making of America, *by Donald L. Miller. New York: Touchstone, 1997, 704 pages, $17 (paper).*
Architectural Associations: The Idea of the City, *edited by Robin Middleton. Cambridge: MIT Press, 1996, 240 pages, $30 (paper).*
CyberCities: Visual Perception in the Age of Electronic Communication, *by M. Christine Boyer. New York: Princeton Architectural Press, 1996, 248 pages, $35.*

There's a vast chasm between what's taking place in cities and what architects and urban designers would like to see occur there. Moshe Safdie draws attention to this rift in *The City After the Automobile*, observing, "During the 1960s, we architects felt we could make a difference. We could influence the character of urban development, revitalize downtowns, stabilize suburban sprawl." Once that hope proved overoptimistic, frustration ensued, and this continuing disenchantment forms a powerful undercurrent in writings on cities today.

Of the books reviewed here, Safdie's is especially heartfelt in its sentiment and graceful in its writing. Yet it is also annoying, refusing to imagine a satisfactory urban future that might realistically be attained in the United States. It is as if, having failed to win widespread adoption of the ideas he pioneered in his Habitat housing complex 30 years ago, Safdie has decided it's more fun to toy—in his writing, anyway—with farfetched notions than to grapple with the real difficulties facing American urban planning. This may seem a harsh view of such a highly talented architect, but what else is a reader to make of the sharp imbalance between Safdie's thoughtful, impressively detailed analysis of how cities got into their present predicament and his abrupt, unpersuasive presentation of what is to be done?



He sets forth a vision of future metropolitan transportation in which buses, light rail, and other mass forms of mobility would be supplemented by hordes of tiny, electric utility cars—"U-cars," which people would rent and return at a multitude of locations, thus, in his opinion, dramatically reducing the space and expense now lavished on driveways, parking lots, and other elements of the auto-oriented cityscape. "The U-car would be stacked like the airport luggage cart and stored compactly on a continuous belt," he fantasizes.

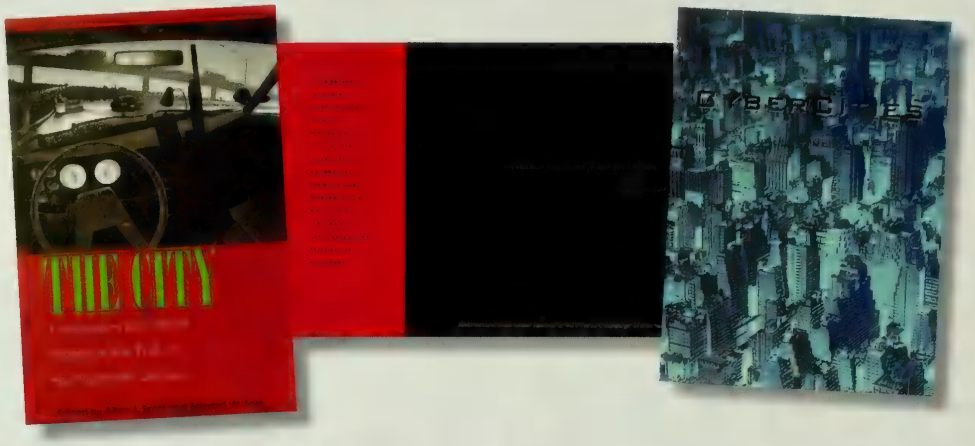
To encourage "spontaneous, unplanned, physical interaction," which Safdie believes makes for "a better and richer society" and helps dissipate conflict and suspicion, he advocates that linear multipurpose centers perhaps a mile long be established where critical elements of the transportation system intersect. Each center—Safdie dubs his proposed prototype "New Cardo"—would act as a focal point for public life in its part of the urban region, and might contain office space for 20,000 to 40,000 workers, low- and highrise housing, a million or more sq ft of shopping and entertainment, and institutions such as an art school or a community college.

This sounds like an Edge City, but immensely better coordinated

and programmed than any Edge City has been in the past or is likely to be in the future. Unfortunately, there is no blueprint for how to achieve this World's Fairytale.

Cities in Our Future, edited by Robert Geddes, is far more down to earth, looking at the possibilities for fostering more equitable and effectively organized regions by presenting case studies of five North American metropolitan areas: New York, Mexico City, Los Angeles, Toronto, and "Cascadia" (an amalgam of Portland, Seattle, and Vancouver, British Columbia). The five studies, compiled for the 1996 United Nations Conference on Human Settlements, blend a useful overview of each region's development with an examination of recent attempts to improve the region's social equity and urban form.

Of the five regions, Toronto is, on the whole, the most successful, maintains Geddes. Not only do its inhabitants—including no fewer than 66 ethnic groups that speak more than 100 languages—coexist peaceably; the downtown remains strong, slums are nonexistent, and, according to authors Gardner Church, Kenneth Greenberg, and Marilou McPhedran, class segregation is minimal. Nonetheless, difficulties have continued to emerge as the population has expanded to five million, spread across five regional municipalities.



Jonathan Barnett's 1995 book, *The Fractured Metropolis*, now in paperback, nicely complements Geddes's collection, presenting numerous New Urbanist approaches to the problems of old urban areas, newly developing communities, and entire regions. Though Barnett, who has been an urban design consultant to several American cities, does not provide surprising insights, he delivers a solid overview of techniques being applied across the U.S.

For the comprehensiveness of its treatment of an urban area, none of the books on this list surpasses *The City*, a collection of 14 essays that Edward Soja and Allen Scott, both UCLA professors, have edited on Los Angeles—now the sixth or seventh largest of the world's "megacities," encompassing 160 municipalities and 15 million people.

USC geography professor Michael Dear supplies a valuable (despite puffed-up academic terminology) history of L.A.'s urban design, concluding that "land use

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planning, as it has been practiced for most of this century, is now defunct." Mike Davis, one of the most captivating left-wing social critics in California, vividly recounts the subjugation of the region's landscape, reporting, for example, that around mid-century 1,000 citrus trees were bulldozed and burned every day for a decade. And Charles Jencks is at his wittiest in his essay on the "L.A. School" of Gehry, Moss, Morphosis, and the rest—arguing that like Los Angeles itself, the inventive, unexpected architecture of chain-link and cheap materials "mixes a sunshine gregariousness, an openness to new experience, with a tough, sadistic streak."

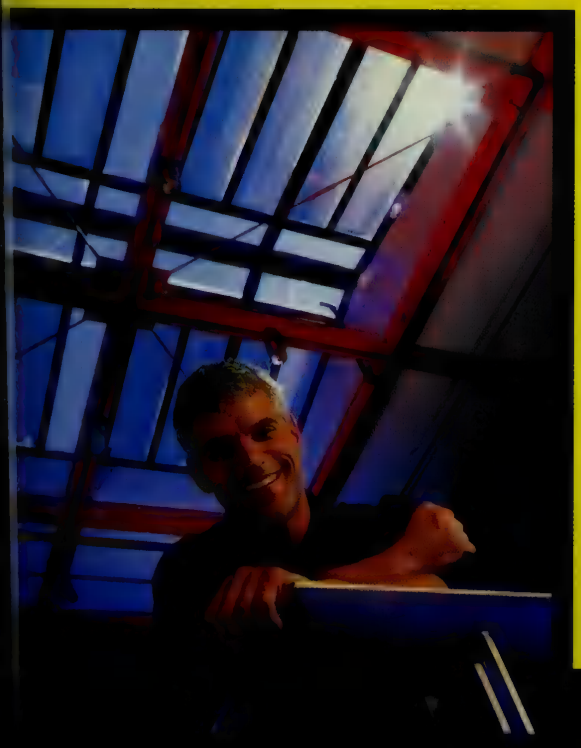
What makes *The City* extraordinary is that its incisive writing on the built environment is part of a majestic whole: a 500-page analysis of the L.A. of leading manufacturing enterprises, Latino and black experiences, a declining WASP influence, Hollywood, homelessness, congested but indispensable freeways, and one of America's most influential design cultures, affecting everything from apparel to furniture to housing. L.A. has produced a dizzying array of innovations that have exerted an influence worldwide. Yet for all that, the region's urban design and social divisions are deeply troubling. This book deserves broad readership because L.A. is more than a major population center; it's the model for many other metropolises in the U.S. and abroad.

For solid narrative history, a good choice is Donald Miller's *City of the Century*, which traces the development of Chicago from its raw beginnings to just after the World's Columbian Exposition of 1893. The era in which this book ends is precisely when Chicago starts to be fascinating, from an architectural point of view. So Miller, who wrote a fine biography of Lewis Mumford, cuts himself off from Chicago's most engrossing design material.

Chicago was a compelling interest of Alvin Boyarsky, chairman of the Architectural Association School of Architecture in London from 1971 until his death in 1990. In tribute to Boyarsky, Robin Middleton has edited a series of essays and interviews, *Architectural Associations: The Idea of the City*, prefacing them with Boyarsky's entertaining ramblings about Chicago, effectively illustrated mainly with old postcards. If only the rest of the essays were as lively as Boyarsky's. True, Rem Koolhaas's keen observations on Atlanta are worth reading, and an interview with Zaha Hadid is to the point. But some of the other pieces, like several pages of mystifying gibberish by Daniel Libeskind, are simply not worth trying to decipher.

Finally, M. Christine Boyer, a professor of architecture at Princeton, has written *CyberCities*, an analysis of cyberspace, virtual reality, cyborgs, and other aspects of computerized culture. Arguing that the computer is to contemporary society what the machine was to Modernism, Boyer wrestles with urban metaphors in a mushy, pretentious way that relies on inflated terms like "metaspace" and "logocentrism." Deeply escapist in its pedantic fashion, this book seems to promise an exploration of some elements of cities (otherwise why the rendering of a skyline packed with stepped-back 1930s-style skyscrapers on the front jacket?), yet it rarely brings issues into sharp focus.

Perhaps such academic evasiveness is yet another result of the difficulties that architects and urban designers have encountered in an urban world where politics, bureaucracy, real estate economics, and other forces have stymied designers' idealism—the idealism that architects like Moshe Safdie once thought would lead to the humanistic refashioning of cities and regions. When the going gets tough, the tenured retreat to faculty clubhouse terminology. This withdrawal of a segment of the educated class from forthright discussion is one more obstacle to the revival of cities. ■



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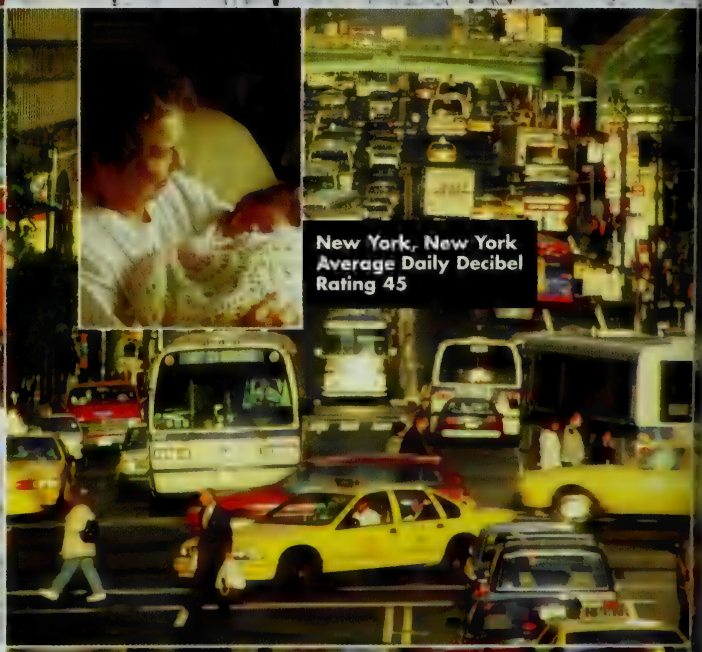
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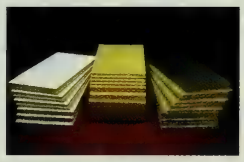
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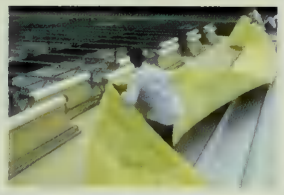


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CIRCLE 14 ON INQUIRY CARD

FROM MANSION TO STUDENT CENTER: NEW USE FOR A GRAND OLD LADY

Nearly 80 years after it was first published in ARCHITECTURAL RECORD, the former Wise house, designed by William Lawrence Bottomley, was reopened as the Jepson Alumni Center at the University of Richmond, Virginia. An architectural symposium studying Bottomley, Ralph Adams Cram, and landscape architect Charles Gillette, who together designed the original campus, coincided with the opening.

The elegant neo-Georgian house, with its balanced symmetry, detailed quoins, and bracketed windowsills, forms the heart of the new center, named for alumnus and benefactor Robert S. Jepson, Jr. It sits atop a hill overlooking a bucolic residential area. Commissioned in 1915 by Colonel Jennings C. Wise, the house originally overlooked the James River. It was later purchased by William H. Goodwin, Jr., who donated it to the university and moved it to its current location.

Marcellus, Wright, Cox & Smith, Architects, of Richmond, completed the restoration and added 22,000 sq ft. Edward A. Smith III, AIA, tried to envision how Bottomley might have expanded the building. Keeping a residential appearance was key, along with softening the Georgian style and linking it to the Gothic Revival architecture that dominates the rest of the campus. The project won a 1997 Award of Merit from the Association of University Architects. *Sally Brown*



MULTI-USE PROJECT TO RISE IN SAN FRANCISCO **A multi-faceted project will rise on the site of the former International Hotel at the nexus of San Francisco's Chinatown, North Beach, and financial districts. The site gained notoriety in the mid-1970s when demonstrators protested the demolition of the International, a residential hotel that was an integral part of the Filipino community. The building was razed, and the site has lain dormant since. Now Gordon H. Chong & Partners, in association with Herman Stoller Coliver Architects, Tai Associates/Architects, and Rojas Associates, all of San Francisco, are designing a $27 million, 206,000-sq-ft project comprising a 15-story tower with 104 units of affordable senior housing; a church, a school, a community center, and a soup kitchen serving 400 for St. Mary's Chinese Schools and Center; and a 150-space underground garage. The program includes a Filipino museum and resource center. A 19-by-21-ft mural honoring the Filipino community will grace the tower's western facade. Construction is scheduled to begin in March 1998.** ***Ellen Kirschner Popper***



FOR PRATT, A BOLD ADDITION TO A LANDMARK BUILDING

From the ashes of a devastating fire an invigorated school of architecture will rise on the Brooklyn, N.Y., campus of Pratt Institute. Steven Holl Architects will use charred red bricks reclaimed from the burned-out Romanesque Revival building to construct a plinth where a glass-enclosed center hall will stand.

In July 1996 fire destroyed the central section of the building, which is H-shaped in plan. The north wing was also damaged, but the exteriors of the north and south wings remained intact. The challenge for Steven Holl, AIA, was to create a link between the surviving wings—the floors of which do not align—to house a gallery, a lecture hall, a workshop, and design studios.

The original building, known as Higgins Hall, was built in stages during the late 1800s for Adelphi Academy, a private boys' school. Pratt acquired the building in the 1960s, and in 1978 it was included in the Fort Greene Historic District by the New York City Landmarks Preservation Commission.

Holl's solution, described as "brilliant" and "very brave" by members of the commission, employs economical, industrial materials. Translucent structural panels of insulated glass enclose a concrete column-and-slab structure. The panels will allow light to enter the studios during the day. At night the glazing will glow with electric light from within "because architecture students always work into the night," said Holl. Clear glass will highlight a new entry and mark the dissonance in floor levels between the wings, a problem whose solution became the organizing principle of the design. The roof, added Holl, will be "a dirty zone, a place to go to spray models and smoke cigarettes."

"The bold solution shows how far we have come in our understanding of historic preservation," said Denis G. Kuhn, FAIA, a principal of Ehrenkrantz Eckstut & Kuhn Architects, who are restoring the damaged wings. "Five years ago the Landmarks Preservation Commission might not have accepted such an evident new insertion into a historic building."

"The leadership of Tom Schutte, president of the Institute, made it possible to create opportunity out of a tragedy," said Thomas G. Hanrahan, AIA, dean of the architecture school.

The budget for the project will be determined in part by an insurance settlement for the fire damage. Rogers Marvel Architects is the architect-of-record.



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HISTORIC LOOP OFFICE BUILDING TO HOUSE ART INSTITUTE STUDENTS

A novel conversion has given life to a run-down, aged Chicago landmark. The 1905 Chicago Building, designed by Holabird & Roche, has been transformed by architects Booth/Hansen & Associates with builder and developer Wooton Construction from a dilapidated, underused commercial building to a bustling dormitory occupied by students of the School of the Art Institute of Chicago.

Over the years, the building has defied developers, planners, and architects to find a viable use for it. Its small floor plate, center light well, and antique mechanical and electrical systems made it impossible to update as commercial space, despite its location at the heart of the Loop business district. Because of its derelict condition, the building was ordered demolished in 1987 by a municipal court. That order was stayed when the Chicago Building was named a city landmark, a designation that protected it from destruction but did nothing to improve its condition. Occupancy above the second story was forbidden, and the building was wrapped with metal straps to prevent the terra cotta cladding from falling.



Even in these reduced circumstances, the beauty of the building has been poignantly evident. Vertical piers make the narrow State Street facade appear taller than its 15 stories, and graceful bays projecting above Madison Street draw sun into the north side of the building.

Wooton replaced a full third of the historic terra cotta facade and reanchored the tiles, which were cleaned and tuck pointed. All mechanical systems were replaced. Booth/Hansen, working under a turnkey contract, laid out the interiors, creating 117 compact suites, each furnished with a full bath and a kitchenette. Said Tony Jones, president of the School of the Art Institute, "We saved a very distinguished building, and now that it's in the hands of the Art Institute it's safe forever." *Cheryl Kent*

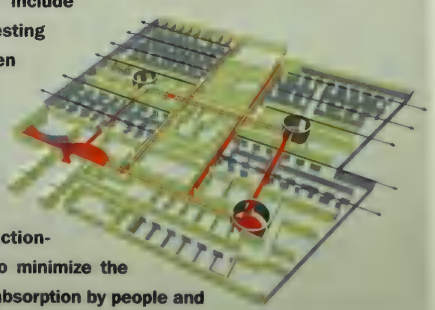
FOR NEW CAMPUS BUILDINGS, COLORADO COLLEGE REACHES FOR STARS

For Dallas businessman Charles Price, patronizing good architects is a family tradition. His grandfather, Harold Price Sr., hired Frank Lloyd Wright to design two buildings, including the Price Tower in Bartlesville, Oklahoma, considered one of Wright's finest achievements. His father, Harold Price Jr., commissioned Wright to build another house in Bartlesville, while his uncle, Joe Price, became a champion of maverick architect Bruce Goff. Charles Price and his wife, Jessie, live in a home designed by Steven Holl, AIA.

Now Price is hoping to promote good architecture at his alma mater, Colorado College. Located in Colorado Springs, the school offers students and faculty members a stunning view of Pikes Peak, but its buildings are less than inspired. The college plans to build a new science building and a new arts complex, and Price would like to give the commissions to world-class architects. To get the ball rolling, Price, along with Elaine Freed, the school's associate vice president of development, invited five firms—Carlos Jimenez Studio, Antoine Predock Architect, Tod Williams Billie Tsien and Associates, Eric Owen Moss Architects, and William P. Bruder Architect, Ltd.—to participate in a lecture series on modern architecture. The architects toured the campus, met with students and faculty, and discussed ways to improve the school's overall design. "It was a chance for us to get to know the architects," Freed said, "but it was also an educational opportunity for our students and faculty members."

Price, who helped pay for the lecture series, insists that he does not want a building named after him. "I'm interested in seeing good architects have their work built," he said. Ultimately, the college's board of trustees will decide whether to hire a nationally renowned architect. One board member, however, is sure to go along with the idea: Charles Price's father, Harold Price Jr. "He supports it," the younger Price said, laughing. *David Hill*

EPA UPDATE **One thousand employees of the Environmental Protection Agency (EPA) have moved into new quarters designed by Gruzen Samton/Croxton Collaborative in the Ronald Reagan Building. The space represents a small portion of the 1.3 million sq ft that the agency will occupy in its relocation to the Federal Triangle complex in downtown Washington, D.C. Working closely with EPA scientists, Croxton Collaborative developed new "green" quality and performance guidelines for the project. These include a new protocol for testing furniture that has been incorporated into the General Services Administration's furniture procurement process, and the formulation of construction-sequencing guidelines to minimize the release into the air and absorption by people and materials of volatile organic compounds and airborne particulates. Window assemblies on existing buildings were field-tested to establish criteria for energy analysis and cost/benefit design strategies. Other concerns were orientation to daylight, "wayfinding" interior plazas, and the use of community-scaled work groupings to give the vast floor plates more human scale. *E.K.P.***





FROM SAWS TO SKYSCRAPERS AT NATIONAL BUILDING MUSEUM

Exhibitions at the National Building Museum in Washington, D. C., range in scale from works of art that find inspiration in the common saw to the history of Washington's plan and recent public architecture in New York City.

"Tools as Art III: All Saws" (on view through April 19) is the third in a series of exhibitions from the art collection of John Hechinger, a leader in the hardware industry. The show explores the possibilities of the common saw when put in the hands of artists. Some works explore saws as instruments of construction and destruction. Others use saws to question notions of domestic harmony; painted scenes on saws recall the heyday of hand labor in rural America.

At the opposite end of the scale, the show "Planning Washington's Monumental Core: L'Enfant to Legacy" (through June 30) traces the development of Washington from Charles Pierre L'Enfant's 1791 design, through the Senate Park Commission Plan of 1902, which created the National Mall, to today. "Civics Lessons: Recent New York Public Architecture" (December 5–May 11) highlights projects initiated by public agencies, from a comfort station in a park to a major waterfront plan.



Grand Central Terminal revitalization by Beyer Blinder Belle (top) and Public School 5 by Gruzen Samton (above), from the exhibition "Civics Lessons."

EXPANDING ARCHITECTS' INFLUENCE IS GOAL OF NEW AIA CHIEF

After an extensive search, the AIA selected a new executive vice president and chief executive officer. He is Mark W. Hurwitz, Ph.D. For close to ten years, Hurwitz has led the Building Owners and Managers Association (BOMA), the oldest and largest trade association representing the commercial office building industry. As he prepares to shift gears and take the helm of the 59,000-member professional society that represents the majority of the nation's architects, RECORD asked him to discuss his role. Following are excerpts from his comments:

"My goal is to make the AIA a more effective advocate for the profession: to expand its respect in the public policy arena, and to strengthen AIA's advocacy role both on Capitol Hill and at the agency level. I also see AIA as an advocate for professional education, helping to provide the public with professionals prepared to meet their obligations to the community. This is an important time for architects. The profession is redefining itself in a most positive way. As the economy continues to strengthen, the construction industry has thrived and architects are reaping the benefits. At the same time, architects are assuming greater responsibility in the design and building process, getting involved very early on in planning issues and in many cases staying involved after the project is completed. Architects are moving from a project orientation to a relationship orientation with clients and communities that extends well beyond a single building project.



Mark W. Hurwitz has been named executive vice president of the AIA.

"We have a strong message that is starting to resonate with the public, and it's a message I want to continue to stress: that good design is good business; that architects are trained to see the big picture; and that it is their ability to solve problems and to pay attention to the bottom line that they are being valued for, now more than ever." *E.K.P.*

YEAR-END LEGISLATIVE UPDATE **As the 105th Congress neared the end of its first session, lawmakers passed a bill to prevent a financial crisis in the Housing and Urban Development (HUD) Department's Section 8 public housing program. But architects will have to wait until next year for action on other key issues.**

HUD's 1998 appropriations, which President Clinton signed into law on October 27, increase aid for expiring Section 8 contract renewals by $4.6 billion. In addition, subsidies to landlords will be pegged to local market rents. Under the old system, periodic inflation adjustments drove subsidies so high that they threatened to burst the federal pocketbook.

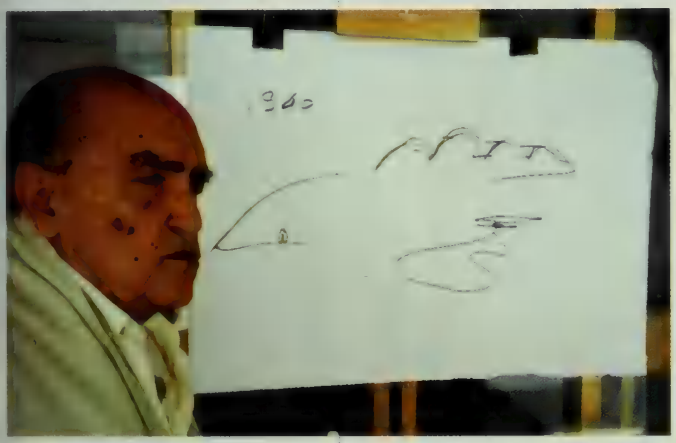
The National Association of Home Builders (NAHB), and other developers who favor enhanced rights for landowners in cases of eminent domain, scored a victory on October 22, when the House made it easier to bypass local courts and bring cases directly to federal courts. But governors and mayors oppose the bill, saying it undermines their authority. Administration officials agree with regional and local governments and recommend a veto. The Senate has not acted.

Federal highway and transit programs will be extended through the spring under legislation now heading for approval. The bill provides $5.5 billion in new highway aid and $2.5 billion for mass transit.

In state legislation, Nebraska has tightened architectural and engineering licensing. For the first time, designers there will need accredited degrees. The mandate takes effect for architects in 2004 and for engineers in 2006. The law has teeth: violators face fines of up to $10,000. ***Tom Ichniowski***

"FORM FOLLOWS FEMININE": NIEMEYER, 90, IS STILL GOING STRONG

Brazil's architect of the century, Oscar Niemeyer, celebrates his 90th birthday this month. He still receives visitors in his penthouse studio overlooking the beach of Rio de Janeiro's Copacabana. He stands at a wooden easel drawing plans once and future with black marker on large sheets of tracing paper. He has shrunk with age but is as debonair as ever: the combed-back hair, artistically long, still hangs over the turned-up collar of his jacket.



The work of Oscar Riberio de Almeida de Niemeyer Soares (b. 1907) has been known internationally since the 1930s, when in cooperation with Le Corbusier he designed Brazil's first Modernist building for the Ministry of Education in Rio. His magnum opus was the new capital of Brasilia in the late 1950s. Since then he has built houses, schools, hotels, government buildings, and monuments in Brazil, Europe, and the United States. Lately he has reduced the size of his office to two or three close associates and family members, who are working on commissions for a museum and for an expansion of the Supreme Court in Brasilia. The self-professed Communist recently designed a 36-ft-tall monument for Havana, protesting the American economic blockade. On the coast in Niteroi, near Rio, stands his new flying saucer–like museum of modern art, one of the increasingly grandiloquent gestures of his long career.

The plasticity of Niemeyer's architecture is largely a result of the miracle material that became widespread as he was coming into the profession: reinforced concrete. He soon realized that it made possible fluid lines, curves, and amazing spans, providing the architect with an unprecedented freedom of form. His best work combines a tropical organic aesthetic with the transparency and clarity of Modernism. Inspired by the spirit of European Modernism, he invented for post-colonial Brazil an architecture all its own—one with which his country could, ironically enough, distance itself from European domination.

Niemeyer has waged a continuing struggle against the chill orthodoxy of the right angle and the straight line: they did not suit the voluptuousness of Brazil. Spreading his arms wide he declaims, "L'architecture, c'est la beauté, c'est le surprise! The Modernists acted as if architecture consists only of rational processes and straight lines. My work is not about 'form follows function,' but 'form follows beauty' or, even better, 'form follows feminine.'" To the charge that his art served the powerful he replies, "I cannot undo all the wrong in the world. I can only counter it with an experience of beauty." *Tracy Metz*

ARCHITECTURAL PRESS ROUNDUP

by Ellen Kirschner Popper

LEVITTOWN TURNS FIFTY

Newsday, October 20 & 26, 1997 Levittown kicked off a year-long celebration of its 50th anniversary, and Long Island's only daily newspaper gave it lots of ink. Forty original residents led a parade of "school bands and sports clubs, bowling leagues and Scouting troops, church organizations and cheerleaders." A float bearing scale models of Levitt houses and a 10-ft-high birthday cake were featured. But not everyone shared in the "unreserved sentimentalism." At week's end, columnist Les Payne reminded readers that Levittown had opened with a restrictive covenant in all mortgages that excluded "any person other than members of the Caucasian race."

SMALL IS BEAUTIFUL

Ski Magazine, November 1997 New Urbanists can now look to ski resorts to see their design principles realized. For landscape architect Eldon Beck, "the most important aspect of a ski village is at eye level, where pedestrians walk." Beck is designing base-area villages in Colorado, Utah, British Columbia, and Quebec for Intrawest, a ski consortium based in Vancouver. To Beck, "the pedestrian system is the structure of the village." His goal: to create environments that delight. His means: authenticity, diversity, and small scale.

STILL LEARNING FROM LAS VEGAS

Las Vegas Sun, October 20, 1997 While ever more outrageous themed casinos are grabbing headlines and drawing tourists to this famed desert resort, local designers, educators, and critics are grappling with the needs of a burgeoning year-round community. Assembled to celebrate the state's first "Architecture Week" (October 19–24), professionals said that new civic buildings like "the Predock Library," as it is locally known, signaled "the beginnings of a Las Vegas architectural style." Still, they lamented the city's fragmentation and disconnection, and acknowledged that the casinos were still the town's best design contribution. Said one critic, "the surrounding areas certainly could learn something from the Strip."

A BASKET OR A DECORATED SHED?

The Wall Street Journal, October 15, 1997 A seven-story structure that replicates a woven basket has been built at a cost of $30 million as headquarters for the Longaberger Co. of Newark, Ohio. No surprise to learn that Longaberger manufactures baskets that have "near cult-like status in the Midwest." The *Journal* called the building "one of the more inventive architectural designs to hit corporate America in recent years." We can't help but wonder what Robert Venturi and Denise Scott-Brown would think.

AND WHILE WE'RE ON THE SUBJECT...

The New York Times, November 1, 1997 In a story about ideas whose time may have come and gone, University of Virginia philosopher Richard Rorty rated post-modernism the "Most Overrated Idea." "It's one of these terms that has been used so much that nobody has the foggiest idea what it means," he said. "It means one thing in philosophy, another thing in architecture and nothing in literature. It would be nice to get rid of it."



COLUMBIA UNIVERSITY CENTENNIAL CELEBRATES McKIM'S PLAN

New York's Columbia University is celebrating the centennial of its campus by exploring social, political, and architectural history through an exhibition, "Mastering McKim's Plan: Columbia's First Century on Morningside Heights."

On view through January 17 at the 116th Street campus, the exhibition traces the evolution of the 1894 master plan by Charles Follen McKim, of McKim, Mead & White, as it transformed four (later six) Manhattan city blocks into a planned metropolitan campus, providing an urban oasis amid New York's dense apartment houses and commercial streets.

"Other than Rockefeller Center and Columbia, New York City has few major coherent urban master plans," said Bernard Tschumi, AIA, dean of the Columbia University Graduate School of Architecture, Planning, and Preservation. Tschumi and associated architects Gruzen Samton recently designed a $70 million new student center, Alfred Lerner Hall, scheduled for 1999 completion. The design includes a four-story glass atrium that will stand in stark contrast to the classical campus.

Today, the legacy of McKim's early vision forms a framework for development that was unforeseen a century ago. The display of work designed for Columbia after World War II, both built and unbuilt, illustrates the controversies that it has suffered over Modernism, urban renewal, and preservation. Models and drawings from the 1960s through the 1990s reflect conflicts with the school's need for increased research space, community concerns, and escalating real estate values.

A second exhibition, "Constructing Low Memorial Library: A Chronicle of a Monumental Enterprise", documents McKim's first campus building with an impressive collection of 1890s construction photographs.

Low Library, completed in 1897, with its monumental stairs, green spaces, and terraces, still dominates and defines the campus in ways that neither McKim nor his client, former Columbia President and later New York City Mayor (1902–3) Seth Low, could ever have imagined, providing a landmark gathering spot for students.

The exhibitions come as Columbia University kicks off a new round of development. *Barbara A. Nadel, AIA*

Rendering of Columbia University campus by McKim, Mead & White (above). Low Library, shortly after construction in 1897 (below).



NEW RESIDENCE HALL TO BE BUILT AT YALE UNIVERSITY

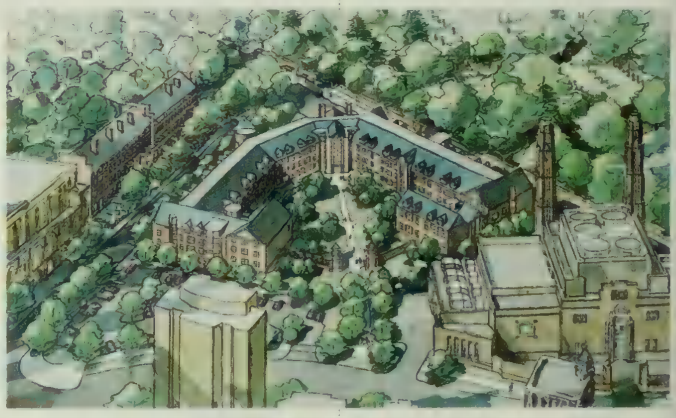
Herbert S. Newman and Partners of New Haven, Connecticut, have designed the first new residence hall to be built on the campus of Yale University in 35 years. The building is scheduled for occupancy in the fall of 1998.

The university has been renovating its residential colleges and needed a dormitory where students could live while their primary college was under construction. Located at the corner of Ashmun Street and York Square Place, the new hall will house 108 two-bedroom suites, each with its own living room, bathroom, and kitchenette. There will also be student activity spaces, lounges, and offices.

In an apartment building–style layout, the suites are arranged along central corridors on four floors. This plan will assure gender privacy within a coeducational setting and provide attractive accommodations for students and faculty members participating in summer programs.

The new design follows the Yale residential college tradition of low structures combined with towers to define courtyards and views. In keeping with other campus buildings, the hall will be brick with a tile roof. The mass will be differentiated with gables, chimneys, bay windows, and dormers, creating a harmonious silhouette. A central courtyard filled with American elms will provide an "outdoor living room" with informal paths, terraces, and seating areas.

Robert Godshall, a partner at Herbert S. Newman, is working with Yale University's project representatives: Archibald Currie III, director of project management, and Pamela Delphenich, university planner. The project will be completed under a design-build arrangement with the Fusco Corporation.



GOOD DEEDS MEET GOOD DESIGN **Good deeds and good design coincided as the Washington Architectural Foundation announced the winners of its Pro Bono Publico Awards. Now in its second year, the competition is sponsored by AEC Solutions, Baltimore, an architectural software company. The winners included a mixed-use redevelopment plan for an industrial neighborhood along the Potomac north of Old Town Alexandria, Virginia, by Lee Quill, AIA; a shelter, education, and training facility for 35 homeless people in a rehabilitated four-story brick building in downtown Washington by Ann Congdon, AIA; the interior design of a homeless shelter with administrative, medical, dental, and counseling facilities by Rebecca Hubler, ASID; and a library housing publications and tapes for the blind by Community Design Services, a group of architects who teamed up for the project. They were led by Robert Nichols, Assoc. AIA, and Michael Schwartzman.** ***Ellen Sands***



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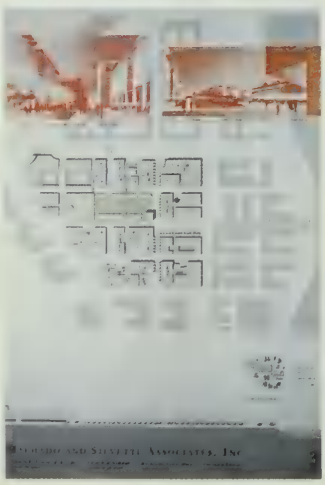
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CIRCLE 38 ON INQUIRY CARD

WINNER ANNOUNCED IN COMPETITION FOR NEW CAMPUS IN SAN FRANCISCO

After more than twenty years of stops and starts, the proposed redevelopment plan for San Francisco's Mission Bay has taken a step closer to becoming reality. On November 3 the Bay Area Life Sciences Association (BALSA) named the winners of an international competition for the plan's centerpiece, a new research campus for the University of California at San Francisco. They were Machado & Silvetti in association with Gordon H. Chong & Partners and the Olin Partnership with Ove Arup & Partners (engineers), and Research Facilities Design (laboratory consultants).

As the linchpin of the Mission Bay plan, competition for the campus commission was fierce. Teams led by Steven Holl Architects with Hargreaves Associates; Sasaki Associates/Shin Takematsu Architect & Associates; Daniel Solomon/Michael Dennis Associated Architects; and STUDIOS Architecture in association with the SWA Group were each given a $50,000 honorarium to develop design proposals.

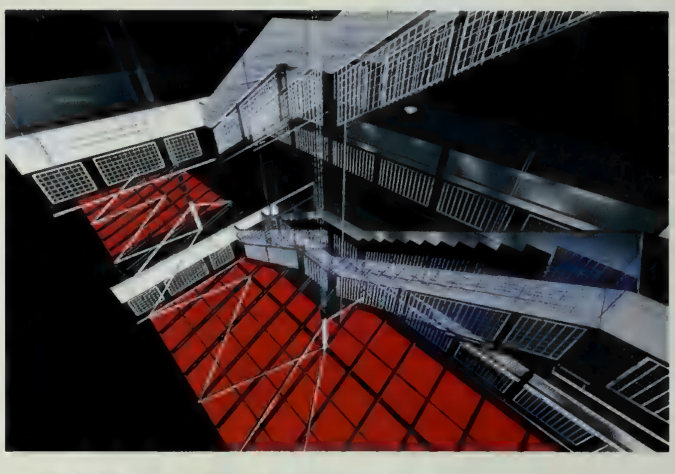


At a time when traditional forms of higher education are threatened with being replaced by information technology providing on-line courses and a "virtual university," UCSF's program stressed the historical importance of urban density and propinquity to its scientific culture.

The campus, which will be built over a 20- to 30-year period, will ultimately include 2.65 million sq ft of biomedical teaching and research laboratories on a 43-acre site in the proposed district.

BALSA representatives praised the winning team for having the "best long view" for the campus, and will recommend them to the University of California Regents both as master planners and as architects of a "signature building" for the first phase of construction.

BALSA is a nonprofit development group spearheaded by Donald Fisher, chairman of The Gap, and William Rutter, co-founder of the Chiron Corporation. It was established in late 1996 to help UCSF locate an additional campus in San Francisco. The group is now negotiating to play a role in the development of future campus buildings. *Eric C.Y. Fang*



BUILDING A NEW FRONTIER: CORPORATE DESIGN ON THE PRAIRIE

Two new corporate headquarters on the midwestern prairie will challenge the stereotype of suburban corporate design. David A. Hansen, AIA, of Perkins & Will, designed the projects, one for W. W. Grainger, Inc. in Lake County, Illinois, and the other for a research/manufacturing client in Chicago's western suburbs.

The headquarters for W. W. Grainger was conceived as a multiphased complex, and the first stage includes two office buildings linked by an atrium. The splayed geometry of the plan will provide a framework to accommodate future additions. Each new phase will add an atrium between building wings, in a fanlike composition. Infused with natural light, the atria will provide focal points and inject the space with movement, according to Hansen. The taut structure of metal and glass will be finished with granite and limestone spandrels and a granite-clad fin-wall that anchors the composition in the landscape.

The headquarters facility for an international research and manufacturing client will consolidate several satellite offices into a single building. The organizing element of the plan is a passageway illuminated by skylights that will link the office laboratory and manufacturing functions. A flexible design responds to the client's need to move offices and, sometimes, whole departments. Project architect Randy Guillot, AIA, said that the project will combine off-the-shelf building components with standard materials to create a cost-conscious, modern design. An exterior skin of foam-filled white steel panels, typically used in an industrial context, will form a dramatic silhouette against the natural hues of the prairie.

LIONS IN HARD HATS **Normally blasé New Yorkers were surprised to see the lions that flank the New York Public Library's landmark building at Fifth Avenue and 42nd Street wearing 50-lb hard hats. The construction gear signals the interior restoration of the main reading room, originally designed by Carrère and Hastings. Architects Davis Brody Bond, Ltd. are refurbishing the grand, wood-paneled room, restoring the ceiling and other architectural details that have suffered through nine decades of wear. Black paint that was applied to the huge west-facing windows during World War II will be removed so that the room will once again be filled with daylight. Mechanical systems that deliver books from the stacks will be rehabilitated. Seating capacity will be increased, and accommodations will be made for electronic work stations and readers' laptop computers. The hard hats were created by Carol Held at American Direct Mail and funded privately. The lions, Fortitude and Patience, will sport their hard hats through the holiday season.** ***Ellen Kirschner Popper***





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CIRCLE 19 ON INQUIRY CARD

NEWS BRIEFS

Law center to use courthouse as lab While most law schools pride themselves on their intimidating atmosphere, the proposed Touro Law Center is intended to provide real-life experience within a supportive environment. Designed by Spector Group of North Hills, New York, the new 150,000-sq-ft law school in Islip, New York, will stand adjacent to the new United States Courthouse and Federal Building, planned by the team of Spector Group and Richard Meier & Partners. "This proximity will allow Touro's students and professors to use the courthouse as a laboratory," said Michael Harris Spector, FAIA.

Look for new CSI documents at AIA convention The Construction Specifications Institute (CSI) has released its new Uniform Drawing System (UDS). The package will be offered for continuing education credits at the next AIA convention.



Rendering of the "Endowment House," Lake Tahoe, California.

UDS provides a system for preparing construction drawings grouped into modules that are organized by drawing type (plan, elevation, section, and details), disciplines (architectural, engineering, and mechanical), production data, and schedules. The information is available now both in hard copy and on CD-ROM. To order, call CSI at 800/689-2900.

Architects donate services in novel fund raiser In a new twist on fund raising, Architects Faulkner + Ryan of Truckee, California, are joining the Tahoe Truckee Excellence in Education Foundation to build and sell a custom home. The profits will benefit local education programs. The Endowment House, as it is known, will be built in the Lake Tahoe vernacular with donated design and construction management services, labor, materials, and land. When complete, it will be sold for about $675,000. Proceeds will boost the foundation's endowment to more than $1 million. The idea evolved when a major ski resort, Northstar-at-Tahoe, donated half the value of a development lot, worth about $75,000, to the foundation.

Chemical-free clinic opens in New York A specially constructed, chemical-free medical center for the treatment of disorders caused by environmental sensitivities has opened in the Architects & Designers Building in midtown Manhattan. Run by Adrienne Buffaloe, M.D., Health Care for the 21st Century (HC/21) was built with low- or no-toxicity materials. It includes an on-site diagnostic laboratory and a heat detoxification unit to remove dangerous chemicals from the body. "Indoor air pollution now exceeds outdoor air pollution as a serious medical concern, and has a negative impact on our immune system," Dr. Buffaloe said.

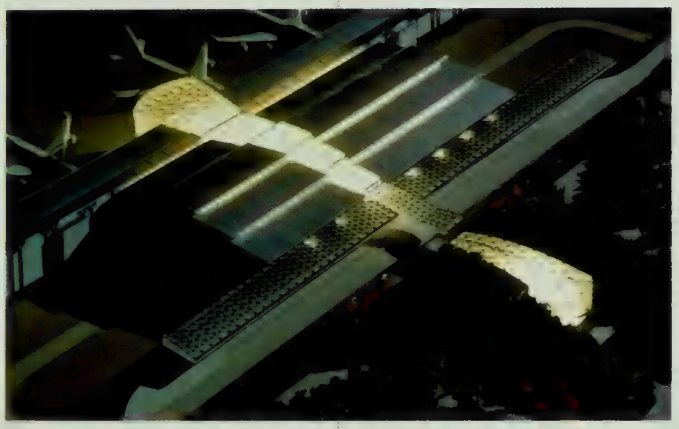
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New insurance designed to minimize litigation CNA Commercial Insurance of Chicago is offering a liability policy to match the revised A201 document. The new policy, Project Management Protective Liability Insurance, consolidates previously separate third-party liability policies for owners, architects, and general contractors into a single instrument of coverage. "By bringing everyone together under one umbrella, this new form of insurance will take away the incentive for parties to sue one another over who was responsible for a construction injury," said AIA contracts director Dale Ellickson, FAIA. "They can stop trying to find fault and concentrate instead on solving the problem."

Green Building Conference links practice with place Austin, Texas, hosted the Sixth Annual Green Building Conference at the Austin Convention Center last month. This year's theme was "Linking Practice with Place: How to Do the Best Where You Are." The conference featured a trade show with over 200 exhibitors, and a tour of green homes and businesses in the Austin area. An award for the best "green," low-income home was presented by the Austin chapter of the AIA to Susan Pendergrast, AIA, for a 1,600 sq-ft-strawbale house.



Model of Fukuoka International Airport's "Gateway to Asia" terminal.

A new "Gateway to Asia" HOK and partner Azusa Sekkei of Japan, along with Mishima Architects and MHS Planners, designed a new $280 million passenger terminal for the Fukuoka International Airport, Japan. The 650,000-sq-ft design uses lightweight, simple-span structures and north-facing clerestories to provide spectacular views of nearby mountains. A gently curved roof is divided into five shells that hover above the main departure level. Like wings of an airplane taking off, the leading edges lift outward, capturing north light and providing glimpses of the sky to passengers waiting in ticketing areas on the departure level.

Canada celebrates the work of John Hejduk The Canadian Centre for Architecture is honoring John Hejduk with the first retrospective of his work, on view through February 1. The exhibition includes five decades of models, prints, and drawings by Hejduk, dean of the Irwin S. Chanin School of Architecture at The Cooper Union. Through his teaching and his intricate theoretical explorations, Hejduk has influenced two generations of architects. His work continually reinforces the notion that architecture is not defined solely by whether or not it is built. "When an architect is thinking, he's thinking architecture, and his work is always architecture, no matter what form it appears in," Hejduk said. ■

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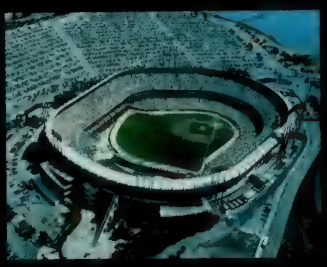
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National Building Museum
Washington, D.C.
"Civics Lessons: Recent New York Public Architecture" takes a look at 79 projects in New York City that were initiated by public agencies working with architects between 1985 and 1995. Organized by the AIA New York Chapter in conjunction with the New York Foundation for Architecture, the show emphasizes the fundamental link between public investment in architecture and the economic, social, and aesthetic quality of the city. Call 202/272-2448.

December 9–January 17, 1998
Storefront for Art and Architecture
New York City
"RUSS: Residual Urban Site Strategies" is an exhibition of projects by architect Gordon Kipping, who works with revitalizing existing structures on New York's Lower East Side. Call 212/431-5795.

December 11–February 8, 1998
Municipal Art Society
New York City
"The Bronx Community Paper Company: Designing Industrial Ecology" chronicles the design evolution of a state-of-the-art recycling plant and paper mill by New York architect Maya Lin. Call 212/935-3960.

December 12–January 24, 1998
Architectural League, Urban Center
New York City
The work of 20th-century modernist Charlotte Perriand, who began her career working in collaboration with Le Corbusier and Pierre Jeanneret on interiors and furniture, is the focus of a retrospective exhibition. Furniture, lighting, and photographs are on display. Call 212/753-1722.

December 15–April 5, 1998
Frick Collection
New York City
An exhibition of the work of architect Robert Adam (1728–1792), considered the father of the Classical Revival in Britain, includes 65 drawings, models, objects, and books on loan from the Sir John Soane Museum in England. Call 212/288-0700.

December 19–March 10, 1998
San Francisco Museum of Modern Art
San Francisco
"Zaha Hadid: Painted Projects" is the first solo museum presentation of the work of the Iraqi-born British architect. The exhibition includes two dozen of the architect's paintings, which depict cities and buildings in assemblages of exploded lines and planes. Her competition-winning designs for The Peak Club in Hong Kong and the controversial first-place scheme for the Cardiff Opera House in Wales are among the works on view. Call 415/357-4000.

Through December 19
Van Alen Institute
New York City
"Designing Islands: The Public Future of New York's Archipelago" offers the first New York showing of entries from "Ideas Afloat," an international competition for the design of Davids Island (off New Rochelle). It also places the entries in the context of design initiatives for New York's other islands, including projects for Governors Island and Randall's Island. Call 212/924-7000.

Through December 28
Orange County Museum of Art
Newport Beach, California
"Frank Lloyd Wright: Designs for an American Landscape" explores five little-known visionary projects by the architect. More than 150 drawings from the Frank Lloyd Wright Foundation and the Library of Congress are included. Call 714/759-1122.

Through December 31
Baltimore Museum of Art
Baltimore
Paintings and decorative arts objects by Baltimore artists, silversmiths, and cabinetmakers completed between 1790 and 1820 are on view in "Celebrating Baltimore's Birthday." The exhibition honors the 200th anniversary of the incorporation of the City of Baltimore and inaugurates the reopening of the museum's John Russell Pope building. Call 410/396-7100.

Through January 4, 1998
Fogg Art Museum, Harvard University
Cambridge, Massachusetts
"Rome and New York: A Continuity of Cities," an exhibition of prints from Piranesi to the 20th century, examines Rome's image as an ancient center of power and religion and New York's as the epitome of the modern city. It also demonstrates how each city has at times embodied the qualities associated with the other. Call 617/495-2397.

Through January 4, 1998
Katonah Museum of Art
Katonah, New York
"Toying with Architecture: The Building Toy in the Arena of Play" features 200 historical and contemporary architectural construction toys, including Erector Sets, Lincoln Logs, and Tinkertoys. Call 914/232-9555.

Through January 4, 1998
Vitra Design Museum
Weil-am-Rhein, Germany
"The Work of Charles and Ray Eames: A Legacy of Invention" is a major retrospective documenting the work of the renowned modernists. The exhibition will travel to the United States in 1998. Call 49/7621/702-3200.

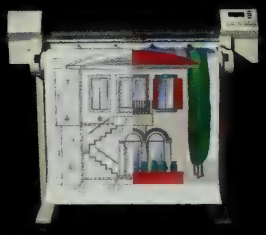
Through January 6, 1998
Museum of Modern Art
New York City
"Achille Castiglioni: Design!" features displays of the Italian architect and designer's furniture, lighting, and domestic objects, as well as reconstructions of interiors he designed for exhibitions in 1957, 1965, and 1984. Call 212/708-9400.

Through January 11, 1998
Cooper-Hewitt Museum
New York City
"Design for Life: A Centennial Celebration" takes a look at "the central role design plays in our lives." The exhibition includes 200 objects from the museum's collection, ranging from examples of industrial and graphic design to textiles and wall coverings. Call 212/849-8420.

Through January 17, 1998
Columbia University
New York City
Columbia University is presenting two exhibitions to celebrate the 100th anniversary of its Morningside Heights campus in Manhattan: "Mastering McKim's Plan: Columbia's First Century on Morningside Heights" (at the Miriam and Ira D. Wallach Art Gallery in Schermerhorn Hall) and "Constructing Low Memorial Library: A Chronicle of a Monumental Enterprise" (in the library's rotunda). Call 212/854-2877.
(continued on page 153)

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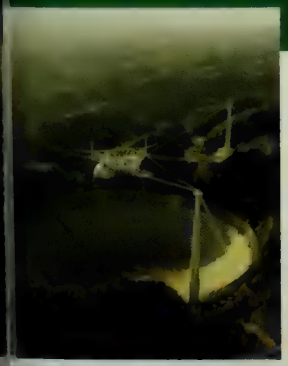
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CIRCLE 23 ON INQUIRY CARD

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Jordan Mozer, Dreamer, Inventor, Artist;
President, Jordan Mozer & Associates, Ltd., Chicago, Illinois, an architecture firm

"Architecture can't always be practiced as a formula. It's also an art form that can be infused with personality, emotion. An opportunity for magical realism, where things are at once familiar but different. Where arches bow. And door handles reach out to shake your hand. Seamless blends of fantasy and reality. Whiffs of once upon a time mingled with hints of tomorrow."

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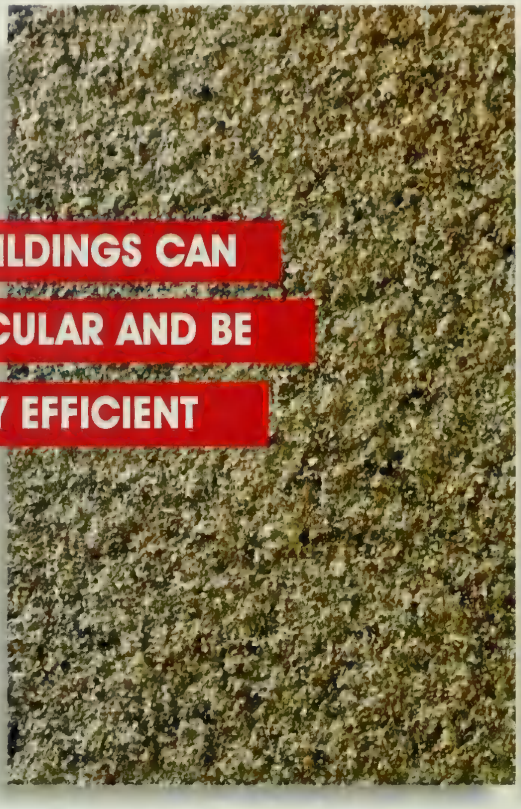
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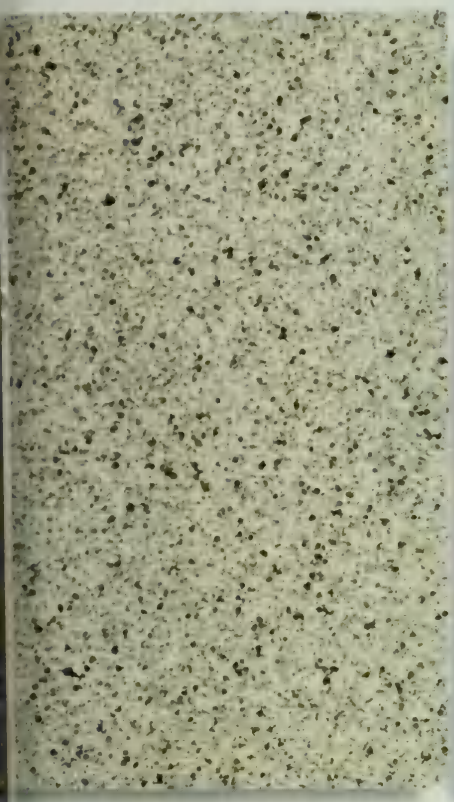
Shown to the right is Lenox Plaza in Atlanta. The objective was to bring a 20-year old building up to Class A status with the look of granite. So, the panels were finished with Dryvit Ameristone. Being lightweight, they were easily trucked to the site as needed. The most compelling statement came from the architect, Jerry Clark, who said, "Anyone who went by the building would think we built a brand new building there. It is totally transformed."

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CIRCLE 26 ON INQUIRY CARD

Making the Renaissance Work

IN THE 15TH CENTURY, ART AND TECHNOLOGY WERE ONE



by Clifford Pearson

Ever wonder what it would be like to operate a mobile siege bridge or a three-speed hoist capable of lifting one-ton loads to the top of the dome of Florence's cathedral, Santa Maria del Fiore? Well, if you visit "Mechanical Marvels: Invention in the Age of Leonardo," an exhibition on view at the Liberty Street Gallery at New York's World Financial Center until March 1, you'll get your chance. Full-scale working models of 50 machines from the Renaissance show how the roles of artist, engineer, and architect were inseparable 500 years ago.

Built by art restorers in 20th-century Florence using only materials dating from the 15th century, the models are windows onto the minds of the men who took construction out of the Middle Ages and brought it into the Renaissance. While you won't be allowed to try out the full-scale model of Leonardo's 35-ft-long flying machine or a 13-ft-tall column lifter, you will be able to play with smaller versions made of modern materials or computer-animation programs that show these amazing contraptions in context and action.

The exhibition begins with Filippo Brunelleschi and his dome for Florence's cathedral, then examines the work of two Sienese engineers (Mariano di Iacopo and Francesco di Giorgio) who designed waterworks and wrote illustrated treatises. The show ends with Leonardo's contributions to mechanical drawing and the design of machinery.

Before Brunelleschi, architects and engineers were anonymous craftsmen. By the time Leonardo died—supposedly in the arms of his patron, King Francis I of France—architects had become intellectuals, wooed to royal courts for their brilliance and the practical application of their ideas. Conversations on natural philosophy at night, designs for revolving cranes and war machines during the day.

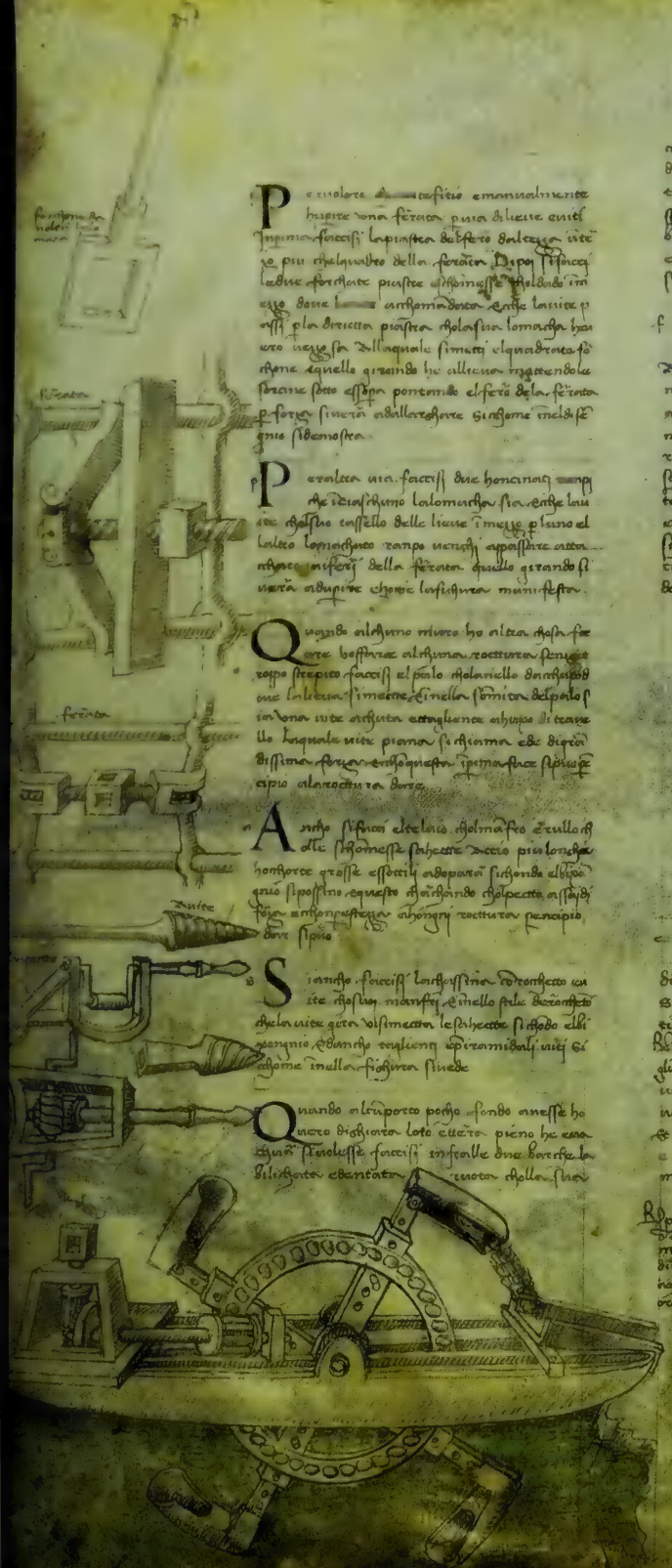
Walking through the exhibition, modern architects can "understand where they come from," says Paolo Galluzzi, director of the Institute and Museum of the History of Science in Florence and the organizer of the show. Back in the 15th century people like Leonardo worked toward "a total integration of philosophy, art, and technics," explains Galluzzi. Not until the end of the 18th century, with the establishment of the Ecole Polytechnique in Paris in 1794, would engineers be educated separately from architects. The split between art and technics has grown ever since.

The working models included in the show may attract the most attention, but the drawings of machines represent a critical turning point for the architectural profession, says Galluzzi. Brunelleschi and medieval designers before him used drawings in the course of their work but saw them as secret tools of the trade. As a result, no architectural drawings from this period have been passed down to us.

But the Sienese engineers used drawings to communicate their ideas to their colleagues and their rich patrons. Indeed, Francesco di Giorgio is credited with writing the first modern technical treatise, merging text with illustrations. Applying his great artistic skills, Leonardo made architectural drawing a powerful means of communication. Much of "the visual grammar of the architectural profession," says Galluzzi, was created during the fertile century from 1418, when work began on the dome of Florence cathedral, to 1519, when Leonardo died. ■



A wood model of Brunelleschi's dome of Florence Cathedral, the largest ever built without using wooden centering (top). A mud extractor designed by Sienese engineer Francesco di Giorgio, used to clear gravel and mud from ports (above and opposite).



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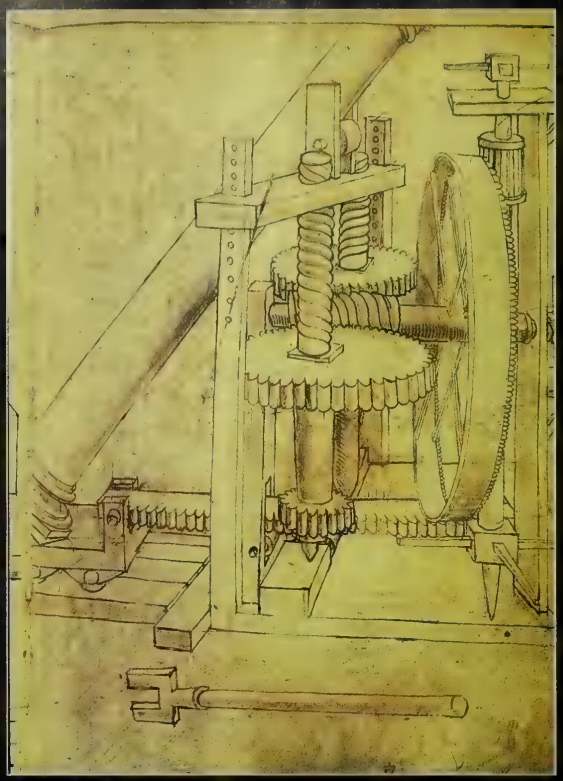
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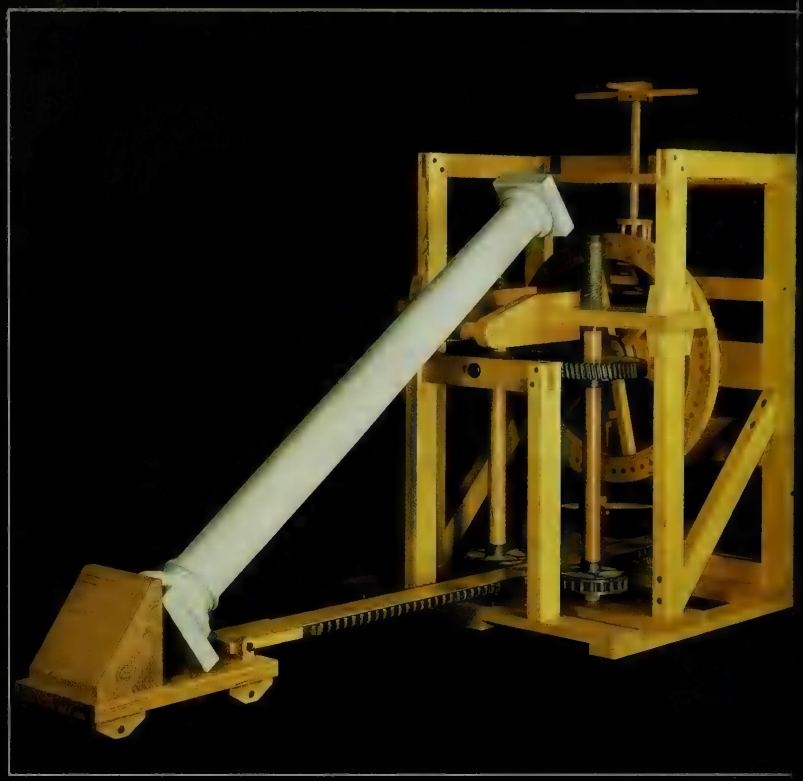
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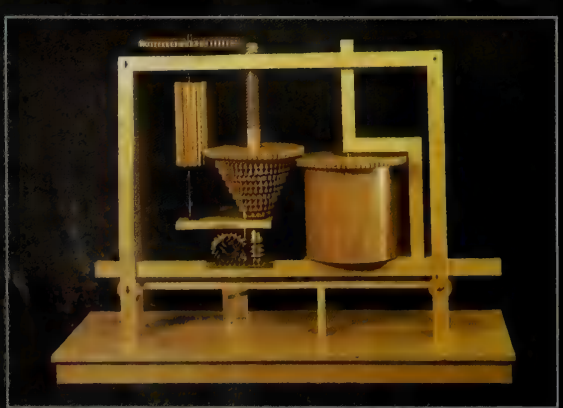
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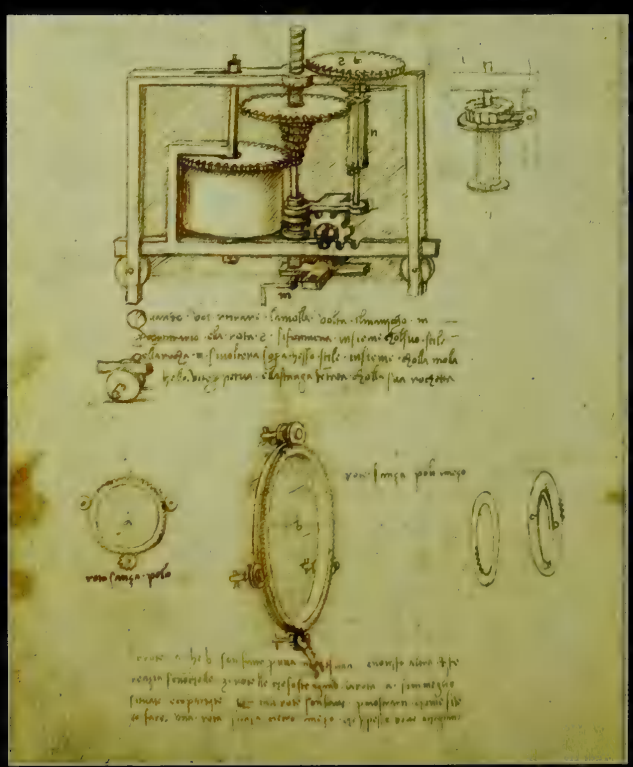


A column lifter designed by Francesco di Giorgio is operated by hand and employs toothed wheels, a pinion, and worm screws to pull a wheeled platform on which the column base rests.



A spring motor by Leonardo da Vinci is a device for regulating the force of a spring concealed in a drum. Sketches show the system of imparting motion to the rack (left in drawing) and the top of the spindle driven by the winding cone-shaped gear (below).





A drawing by Leonardo of Brunelleschi's revolving crane used in building the Florence Cathedral dome, and a photograph of the new working model of the device. The crane, which was at least 65 feet high, could rotate 360 degrees and set heavy stone blocks in place.



Project Outline

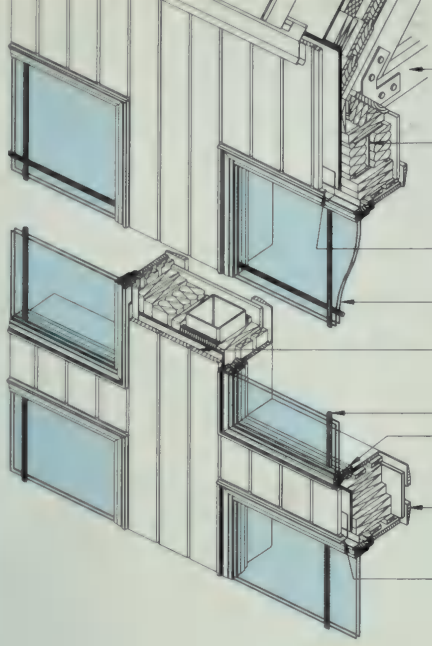
Design a waterfront community center built to withstand salt air, high winds and seasonal temperature variations. It must meet the approval of an unusually diverse constituency, including the Army Corps of Engineers, Maryland State Department of Natural Resources, Town of Ocean City and Heron Harbour Isle Recreation Association.



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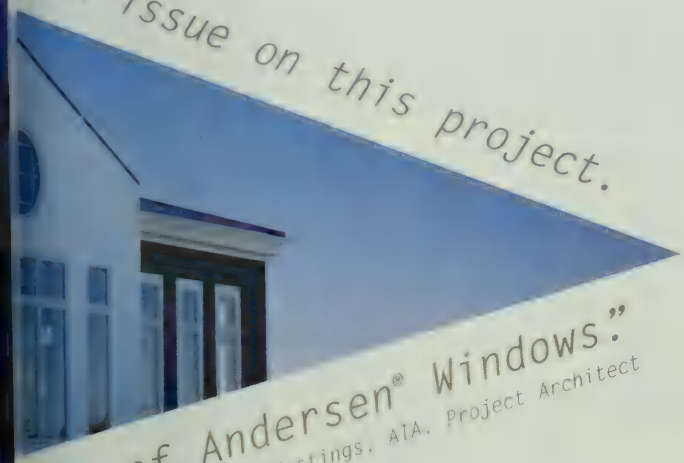
Design Solution

Draw from influences of lighthouses and traditional East Coast architecture to construct a facility that uniquely reflects the community and endures the challenging nature of its environment. Use a wide variety of Andersen® Windows to open up each room to the views offered by the site, and bring in an abundance of warm, natural light.



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3. Silicone sealant with foam backer rod
4. Andersen® High-Performance™ Insulating Glass
5. Vertical wood siding
6. Andersen® custom interior grille
7. Andersen® awning picture window (AP3535)
8. Wood casing
9. Continuous head flashing

s an issue on this project.



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Brad A. Hastings, AIA, Project Architect



Heron Harbour® Isle Amenity Center.

Architects: Becker Morgan Moore Olds & Richter Inc., Salisbury, Maryland

Project Architect: Brad A. Hastings, AIA

Project Principal: W. Ronald Morgan, AIA

Project Team: Jack E. Mumford III, Associate AIA

Contractors: J. Roland Dashiell & Sons, Inc., Salisbury, Maryland

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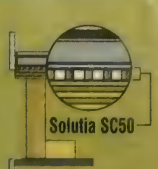
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CIRCLE 17 ON INQUIRY CARD

BUILDINGS FOR COMMUNITIES

Creating the Ripple Effect

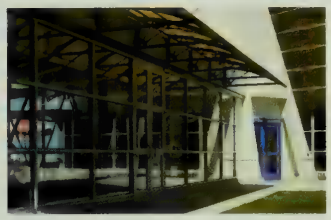
THE BEST COMMUNITY BUILDINGS ARE THOSE THAT IMPROVE THE SELF-IMAGE OF THE INDIVIDUAL USER AND OF THE LARGER SOCIETY IN TURN.

by Charles Linn, AIA













1 Sioux City, Iowa
Architect Randy Brown's renovation allowed the Boys Club to expand programs and raise funds.

2 San Diego, California
The M. W. Steele Group's passively cooled, daylit library gives its patrons lessons that go beyond the books.

3 New Orleans, Louisiana
A Salvation Army shelter for the homeless by Errol Barron/Michael Toups allows people to reside in dignity.

4 Bronx, New York
Urban Architectural Initiatives' recreation center for young people has spurred a neighborhood renaissance.

5 Indianapolis, Indiana
BDMD's new theater at the world's largest children's museum reaches for a wider audience.

6 Overland Park, Kansas
Recycling a discount house into a library let Gould Evans Goodman save taxpayers millions of dollars.

One of the greatest challenges architects face is to make environments that create a positive change in people. A good project can cause a ripple effect that influences other projects for the good, which is what buildings that serve communities should do. But it isn't as easy to establish how well a building contributes to a community as it is to determine how other types of buildings perform their jobs.

An office building should have an intelligently designed floor plan, of course, but more important, it should help make a statement about the corporation that resides in it. A clothing store should project the image of the garments sold inside well enough to tell us if their styling is suitable for reinforcing our own self-images.

Following this logic did provide a certain direction for choosing projects for this Building Types Study. The best buildings for communities are those whose design is forceful enough to help people redefine their images of themselves.

The better projects do this on more than one plane. Both of the libraries being featured in this issue, for instance, are cornerstones for learning in their affluent communities, but both also have a "green" component that can teach lessons about using natural resources wisely. One is a building recycled from an abandoned concrete discount store; the other is daylit, and passively ventilated and cooled.

Several buildings included here are used for social programs. The Salvation Army homeless shelter provides a refuge for transient people, as well as a long-term shelter for battered women trying to start new lives and families who have lost their homes. Because the building is located in a middle-class neighborhood, those who stay there aren't forced to live in a poor part of town in order to get help, and they can face the immediate future with dignity.

The Boys Club provides activities for at-risk boys in a renovated armory that the club has occupied for many years. Since it was remodeled—on a shoestring budget—the club's increased success in fund-raising has helped expand its programs to include more youths for the first time in years. The Boys Club is possibly the most thoughtfully designed environment its users have ever been in.

Perhaps in some way the pride that users take in such special places will lead them to become more thoughtful members of their communities. When architecture influences people this positively, the ripple effect has begun. ■

1 Boys Club Sioux City, Iowa

A RENOVATION ON A SHOESTRING BUDGET PROVIDES A SAFE HAVEN FOR AT-RISK BOYS AND A SURPRISING BONUS: EXTRA INCOME.

by Linda Hallam

Project: *Boys Club of Sioux City, Sioux City, Iowa*
Architect: *Randy Brown Architect—Randy Brown, AIA, principal; Christian Petrick, Jason Winterboer, collaborators*
Client: *Boys Club of Sioux City, United Way—Roger Friesen, director; Bill Felges, board member in charge of renovation*
Contractor: *W. A. Klinger Inc. Constructors—John Gleesen, president, Steve Koza, project manager*

Project Statistics
Renovation cost: *$350,000*
Size: *40,000 sq ft*

Sources
Glazing: *Insulite Glass, Polygal*
Windows: *Kawneer*
Cabinet hardware: *Forms + Surfaces, Julius Blum*
Paint: *Sherwin Williams*
Carpet: *Shaw*
Resilient flooring: *Azrock*
File cabinets: *Steelcase*
Light fixtures: *Snake Lights, Halo, Metalux*
Plumbing fixtures: *Elkay, American Standard*
Ceramic tile: *Crossville Ceramics*

Linda Hallam edits shelter books for Meredith Corp., Des Moines, Iowa. She was formerly the editor of the homes section of Southern Living *magazine.*

The rehabilitation of the Sioux City, Iowa, Boys Club building dispels any doubts about how architecture can engage children, provide a place for them to play—and even improve the income of a nonprofit organization. The club, which is open after school, on weekends, and in the summer, targets at-risk boys starting at age seven. Working with a strict budget, architect Randy Brown, AIA, rehabbed the club's turn-of-the-century converted brick armory for $350,000.

Since the 15-month rehabilitation, membership has increased 46 percent to 900 boys, and the club is now offering its first teen program in 20 years. The rehabilitation project has also contributed to increased financial support for the club, says director Roger Friesen. Bingo games for adults, held at night in the same facility, fund the club. "We have had a 40 percent increase in people playing since the rehab," he says.

"At first," says Brown, "the idea was just to paint and carpet again, as had been done over the years." But one of the board members, Bill Felges, wanted to do more, and he pushed for an architect. "When we met with the boys," continues Brown, "they wanted more, too. We brainstormed with them in groups. They wanted windows, a basketball court, and a treehouse or a boat."

Using the boys' ideas, Brown says he looked for safe and economical ways to translate their energy into the design. "We couldn't have things the boys could climb," he explains, "so we abstracted the ship metaphor into the games room counter and storage wall." The architect used faceted surfaces throughout to make the interior spatially dynamic. "We wanted to put a lot of interest in the wall forms, so they would climb with their eyes and minds." The idea was to create movement and to stimulate.

To meet the program and the budget, Brown worked with durable yet inexpensive materials, and with as much of the original turn-of-the-century building as possible. "We used oriented-strand board [OSB], corrugated fiberglass, sheet metal, and ceramic tile," he says. New windows were inserted into previously boarded-up openings.

With the help of the boys, the general contractor stripped the spaces back to their original materials. Maple flooring and plaster ceilings were restored, and brick walls were exposed.

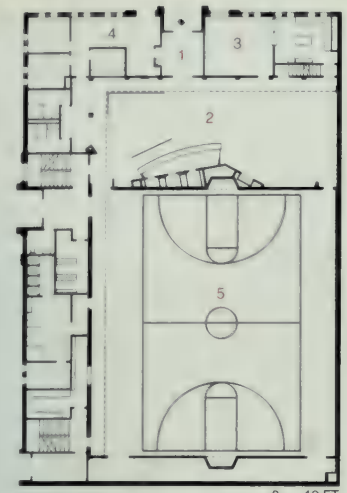
Though the goal was to reuse and recycle, some spaces stand out as new and improved. "We designed the entry to be a transformation space, so when the boys come in from the outside they are ready for the experience," says Brown. Gray tiles on the floor and walls angle to create a forced perspective. The original plaster ceiling is painted a dynamic cobalt blue. A white ceiling plane hangs from cables.

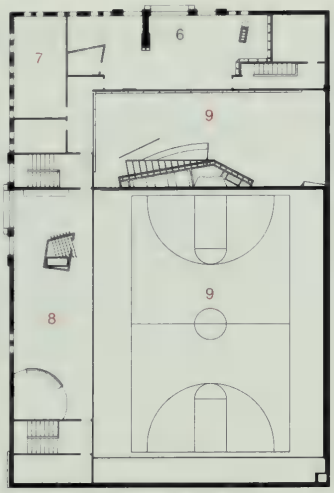
Materials are likewise combined in the games room, in the building's central core. "This room was designed to have a theatrical feeling, a contrast to other rooms that are filled with light," notes Brown. The design adds snake-type lights, and the existing fluorescents were covered with spiral ductwork and slotted to emit light.

A favorite space is the "stuff" room. "It's a clubhouse within the club for the boys," Brown says. Designed as a freestanding object, the stuff room has an entry of green-painted OSB and sides of clear fiberglass and two-by-fours.

The renewed club has proved to be a popular spot for many boys. "Boys are proud they belong, and they want to be here," says Friesen. ■





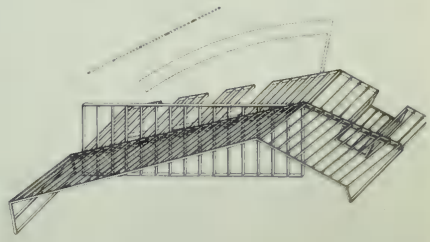


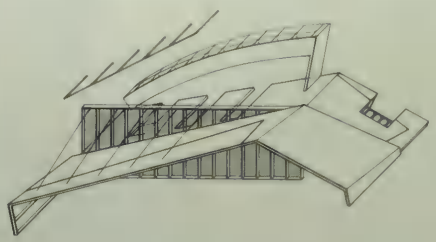
1. *Entry*
2. *Games room*
3. *Dining room*
4. *Offices*
5. *Basketball court*
6. *Learning center*
7. *Discussion room*
8. *Teen room*
9. *Open to below*

Constructed of OSB, the games counter (below right, drawings bottom right) has a niche for a television (opposite) and a check-out for toys that are to be used in the room. A favorite place in the teen room is a free-standing, inner room with fiberglass walls, illuminated by snake lights. Called the "stuff" room (below left), the space is used by older boys as an inner sanctum.









2 Carmel Mountain Ranch Library San Diego, California

AN ARCHITECTURE-ENGINEERING TEAM TAKES ADVANTAGE OF SAN DIEGO'S TEMPERATE CLIMATE IN THE DESIGN OF A SUBURBAN BRANCH LIBRARY.

by Eric C.Y. Fang, AIA

Project: *Carmel Mountain Ranch Library, San Diego, California*
Owner: *City of San Diego*
Architect: *M.W. Steele Group—Mark W. Steele, AIA, principal-in-charge; J. Randel Hanna, AIA, project architect; Matthew Wells, AIA, James Gabriel AIA, Ken Bierly, project team*
Consultants: *Environments, Michelle Needel (interiors); Ove Arup & Partners California (structural, mechanical, electrical); Lundstrom & Associates (civil); Spurlock-Poirier (landscape)*
General Contractor: *M. A. Mortenson*

Project Statistics
Construction costs: *$2.25 million*
Furnishings, land, and soft costs: *$454,000*
Size: *13,000 sq ft*

With its wide streets, ample parking, and centrally located golf course, Carmel Mountain Ranch is the kind of planned community frowned upon by New Urbanist designers but favored by the middle-class professionals who live there. As the development approached its target of 5,200 homes, and had a commercial center, schools, and a fire station in place, the developer, the Presley Companies, asked the M. W. Steele Group to design Carmel Mountain Ranch's first civic buildings. These included a community swimming pool and fitness center, completed in 1996, and a 13,000-sq-ft structure to be built as a turnkey project for the San Diego Public Library.

Mark W. Steele, AIA, studied the problem: creating a public space on a site he described as "not particularly civic." Steele, along with Marty Poirier of the landscape architecture firm Spurlock-Poirier, approached the site critically. Noting that the neighboring shopping center and golf course faced the street with berms and parking lots, Poirier felt strongly that "the library, as a civic building, should break this pattern." Steele and Poirier resolved the ever-present suburban planning conflict between street and parking lot by pushing the building to the street, locating the parking at the rear, and providing entrances on both the street and parking lot sides of the building. This also created a landscaped plaza. Wherever possible, Poirier distinguished design interventions from the natural condition of the site. Rather than grading the site—suburban style—to form a level "pad," Spurlock-Poirier re-created the original grades, which drop about 10 ft across the site. This put the west-side entrances on grade with the sidewalk, while the east side, enclosed by a garden wall, was built up on a plinth covered with riprap. The siting emphasizes the building and its dramatic butterfly roof.

Steele wanted to take full advantage of San Diego's famously temperate climate so that library users could feel free to go outside to read or gather for study. While this goal might not seem extraordinary given the region, Steele found that heavily air-conditioned interiors, in addition to librarians' security concerns, prevented most library courtyards from being used. To address these constraints, the architects placed the building in a walled garden—a decision, Steele says, that set them "down the path of doing a glass building."

Working closely with engineers Ove Arup & Partners, the architects developed a strategy founded on



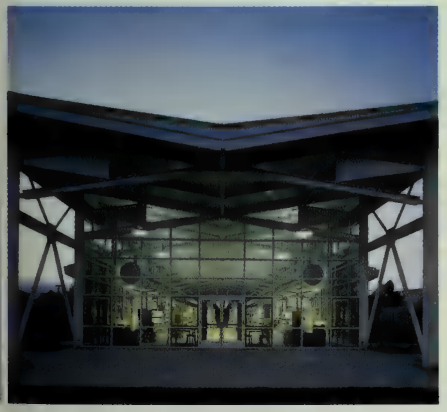
Eric C.Y. Fang, AIA, is an architect and urban designer with Skidmore, Owings, & Merrill, San Francisco.



A wall around the courtyard (opposite and above) allows patrons to enjoy the out-of-doors without breaching security. The steel moment frame (below) carries light shelves and sunshades.

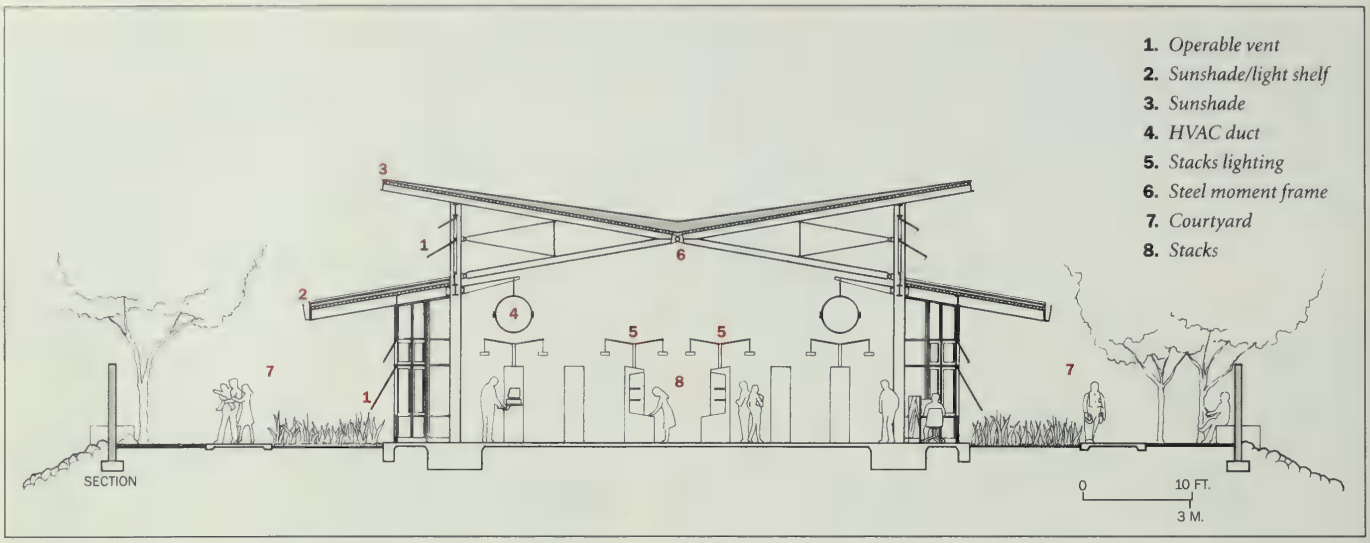


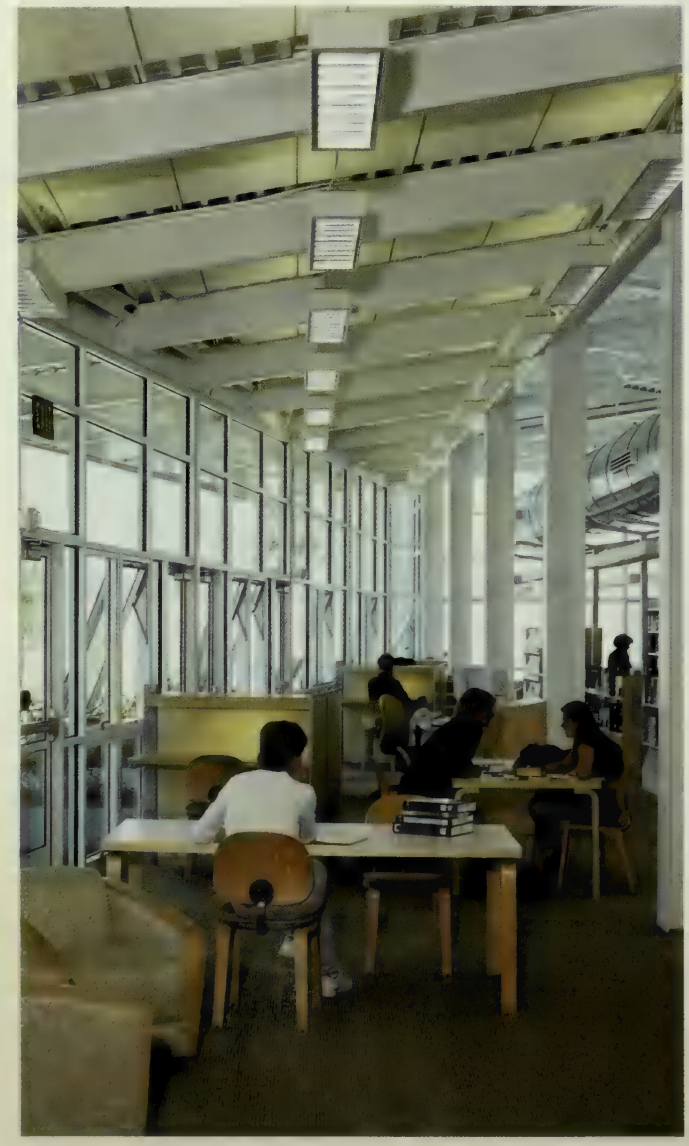




Details of the moment frame (opposite and photos above) show how it is integrated with the building interior and sunshades. Although it is possible to rely on passive ventilation (right) because of the region's temperate climate, building operators must have a better understanding of how to make the interior comfortable than they might in a conventional, sealed, air-conditioned structure.







basic passive-solar and natural-ventilation principles with decidedly low-tech systems. Convection draws fresh air in through operable windows at user level and exhausts hot air through the clerestory. Steele and Ove Arup principal Alan Locke employed several other mainstays of passive-solar design such as high-density, heat-absorbing concrete masonry walls; seven-ft overhangs and vertical sunshades on the south side; and lower-level roofs used as light shelves. Spurlock-Poirier complemented these techniques by locating evergreen and shade trees on the south side and smaller trees to the north.

As a result of these measures, Arup sized the HVAC system only for "peak-trimming," on those few days when inside temperatures exceed 78 degrees. Chuck Angyal of San Diego Gas & Electric, which provided pro bono technical consulting under the utility's incentive program, predicts that the building's energy consumption should be half that of San Diego's typical branch library.

The interior, with its exposed moment frame and latticed roof trusses, imparts the feeling of a pavilion in a garden. The steel detailing, which is particularly conspicuous because the glazing is in the same plane as the structure, owes its success in part to the craftsmanship of the general contractors.

Awareness of the garden and the mountains beyond is heightened by the taper of the reading areas on either side of the main stack area, the spatial and formal continuity between inside and outside, and the profusion of indirect daylighting.

The daylighting is so effective, according to Steele, that it exceeds the library's minimum footcandle requirements. But the energy savings are undercut by an automated lighting control system that is installed as standard equipment in City of San Diego buildings. It keeps the lights on all day whether they are needed or not. Steele is working to have the controls reset. He stresses that people have to be taught to use buildings that rely on "passive" means for environmental control, and that these buildings may, paradoxically, demand more interaction from those who are responsible for operating them. ■

Sources

Metal curtain wall and windows: *Kawneer*
Sun-control laminated glass: *Northwestern Industries*
Metal roofing: *ASC Pacific*
Hardware: *Schlage, Hager, Von Duprin, Forms + Surfaces*
Plastic laminate: *Formica*
Ceramic floor tile: *Dal-Tile*
Carpeting: *Shaw Commercial*
Lighting: *Lightolier, Louis Poulsen, Capri, Taos, Bega, Lithonia*
Plumbing fixtures: *Kohler*



SITE PLAN

1. *Entry*
2. *Circulation*
3. *Book stacks*
4. *Reading*
5. *Staff*
6. *Children's stacks*
7. *Community room*
8. *Porch*
9. *Courtyard*

The system of light shelves is efficient enough that natural light can satisfy most of the library's requirements during the day (photo opposite). Supplemental fluorescent lighting is used between bookcases in the stacks (below). Once the building's energy controls are fine-tuned, electric lighting will operate only when needed.

3 Salvation Army Center of Hope New Orleans, Louisiana

A NEW FACILITY DRAWS ON AN ARK METAPHOR, GIVING THE HOMELESS A REFUGE IN THEIR STORMY TIMES.

by Charles Linn, AIA

Project: *Salvation Army Center of Hope, New Orleans, Louisiana*
Owner: *The Salvation Army*
Architect: *Errol Barron/Michael Toups Architects—Errol Barron, FAIA, Michael Toups, Steve Olson, Cindy Garbutt, design team; Steve Olson, project architect*
Consultants: *Zehner & Bouchon (structural); Huseman Wang (mechanical/electrical)*
General Contractor: *Gibbs Construction*

Project Statistics
Construction cost: *$3,694,000*
Size: *37,000 sq ft*

Sources
EIFS: *Senergy*
Metal curtain wall: *Kawneer*
Metal roofing: *Berridge, Atlas Aluminum*
Windows and entry doors: *Kawneer*
Glass: *PPG*
Wood doors: *Benton*
Hardware: *Yale, Hager*
Acoustical ceilings and suspension system: *Armstrong*
Paints and stains: *Glidden, Devoe*
Plastic laminate: *Formica, Wilsonart*
Ceramic floor tile: *Dal-Tile*
Resilient tile: *Azrock*
Carpeting: *Cambridge*
Lighting: *Lithonia, Kim, Sternberg*
Elevator: *Otis*
Plumbing fixtures: *Kohler*

Bringing the Salvation Army's new Center of Hope into a zone of residential and medical buildings in New Orleans naturally raised eyebrows among the neighbors. But the facility defies the usual expectations. Rather than being patched together in an economically deprived part of town, the new building is in a middle-class neighborhood and it relates well in scale and materials to an adjacent medical complex.

"One of the big shifts we made in the process of design," says architect Errol Barron, FAIA, "was metaphorical." Originally the architects had conceived the building, which serves individuals, displaced families, and the victims of domestic violence, as a big house, made entirely of brick with lots of dormers, nooks, and crannies.

But the early plan was expensive, and after making a trip to see other Salvation Army facilities, "we stripped the building down considerably," says Barron, "and shifted the paradigm from a house to an ark. We thought of it less as a home and a bit more as a vessel, or sanctuary, where people could go and make a retreat from the 'troubled waters' around them."

The architects and the Salvation Army participated in public meetings to assuage community concerns. One concern was that lines of people would form around the building at the end of the afternoon, because the Army requires that people staying there leave from 9:00 a.m. to 5:00 p.m. to look for work, only allowing them to return in the evening. Barron addressed this issue through the building's orientation. "The way the facility is set up," he says, "the lines form on the interior of the block, and there are no lines on the street."



By using institutional materials, and calling the building the Center of Hope, the Salvation Army aligns itself with the medical community nearby. Because of this connection, the center's users can be understood as people needing food, clothing, shelter, and medicine, just as patients in a hospital would.

Users of the center gather outside under a pair of covered walkways, one for women and one for men. For security reasons, women enter at the main lobby and men have a separate entrance and lobby. Inside the building, men and women use separate circulation paths and are not allowed to mix except in the dining room.

About 260 people can be cared for each night in the facility, and each floor of the center is dedicated to the needs of at least one group. The first floor has offices for the staff and counselors, a staff apartment, a laundry, a kitchen, and a dining room, as well as outdoor smoking courts for each sex. Storage lockers are also provided on the first floor.

The second floor, for the men, is accessible by a dedicated stair. A



1. *Lobby*
2. *Foyer*
3. *Dining/meeting*
4. *Kitchen*
5. *Office*
6. *Staff apartment*
7. *Women's dormitory*
8. *Bedroom*
9. *Library/lounge*

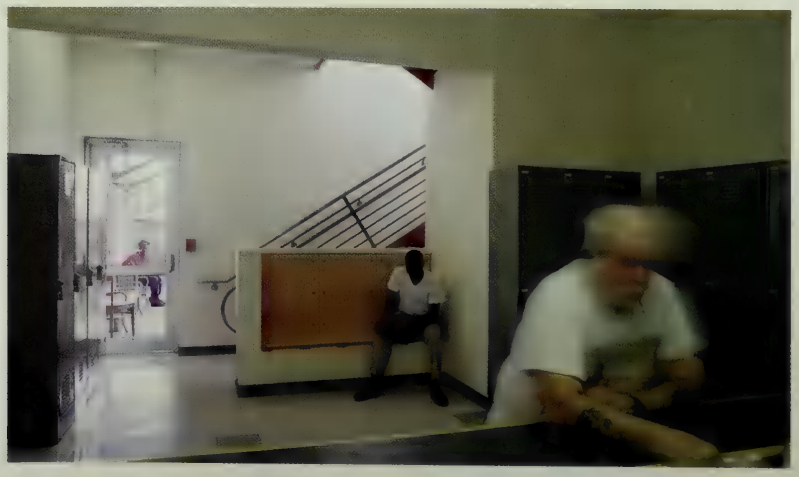
corridor running the length of the building is anchored at each end by a daylit lounge. On each side of the corridor is a dormitory that accommodates 46 beds, as well as toilets, sinks, and showers. A separate pair of dormitories and toilet facilities is provided for men in the Harbor Lighters, an intensive 90-day drug, alcohol, counseling, and work-therapy program.

Women are housed on the third floor, which has a corridor running down the middle, a lounge at one end, and a library and lounge at the other. There are two dormitories, each with its own toilet facilities, and 12 bedrooms and a small kitchen for women and their children recovering from domestic abuse. Each pair of bedrooms has a bathroom. The third floor is accessible from an elevator that does not open on the second floor.

Ten fourth-floor apartments are used as transitional housing for families who have been displaced from their homes. The Army works with these families for up to six months to help them prepare to return to permanent housing.

"One of the most important things about the facility is that it gives our clients pride in themselves," says Major Robert Hopper, area commander of the Salvation Army in New Orleans. "People don't feel good about themselves sleeping on the streets." ■





The Center of Hope has the appearance of an ark (opposite), a place where the homeless can take refuge from seas of trouble. For security reasons, men and women are given separate smoking lounges (above) and lobbies (left).

4 Mary Mitchell Family and Youth Center Bronx, New York

A RECREATION CENTER DESIGNED BY URBAN ARCHITECTURAL INITIATIVES HAS BEEN A CATALYST FOR COMMUNITY DEVELOPMENT.

by Clifford Pearson

Project: *Mary Mitchell Family and Youth Center, Bronx, New York*
Owner: *City of New York*
Architect: *Urban Architectural Initiatives—David L. Hirsch, design partner in charge; Michael Weiner, project architect; Koko Uyo, Jonathan Pearlstein, project team*
Engineers: *Albert Kung & Associates (structural); Electro Mechanical Technical Group (mechanical)*
Consultants: *Electro Mechanical Technical Group (lighting); Ray Firmin (cost estimating)*
General Contractor: *Interior Construction Corp.*

Project Statistics
Size: *8,000 sq ft*
Cost: *$2.5 million*

Like the woman it is named for, the Mary Mitchell Family and Youth Center in the Crotona section of the Bronx is a catalyst for change in a tough neighborhood. A mix of Dominican, Puerto Rican, and West Indian enclaves, Crotona has long been passed over politically and economically. So a new public building like the Mitchell Center is an important sign of change.

For many years until her death in 1979, Mitchell—who worked at a local hospital and lived in the neighborhood—would close Mapes Avenue from 178th to 179th Street and open an old building on the block each afternoon so kids in the area would have a supervised place to play. Her efforts, all as a volunteer, provided a caring place for children and in the process helped bring a neighborhood together.

The old building, damaged by fire a few years ago, has been replaced by a new facility designed by Urban Architectural Initiatives (UAI), a Manhattan firm headed by David Hirsch. Now there's no need to rope off Mapes Avenue and have ball games in the street. A proper playground and a two-story building accommodate a broad range of activities.



UAI got the commission for the project after submitting its qualifications to the city and waiting for the computer to match it to a job. While the city's department of design and construction was the client, much of the funding and impetus for the project came from the office of Bronx Borough President Fernando Ferrer.

To stay within a tight $2.5 million budget, UAI decided to keep the structure simple (load-bearing masonry walls with a standing-seam metal roof) and then provide visual excitement with a steel-and-glass circulation spine and colorful trim and infill panels.

"We kept the building to just a floor and a half on the front to help it fit in with the neighborhood," explains Hirsch. In the back, the playground cuts into the site, turning the building into a two-story structure on this side. The front entrance to the building is at a mid level, so visitors climb half a flight to the main floor where a reception counter and offices are on one side of the hall and a multipurpose room is on the other side.

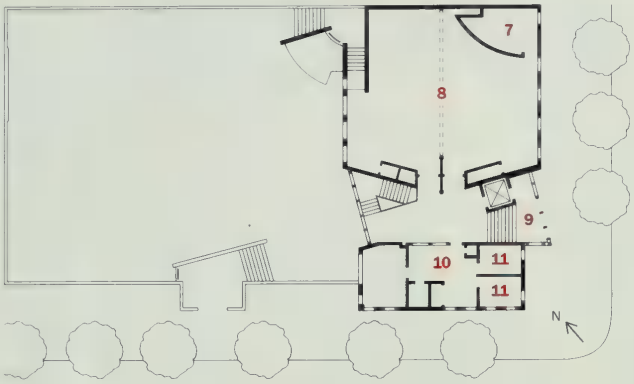
Because it is just 8,000 sq ft in size, the building could include exposed steel members on the interior of the angled circulation spine and still meet fire codes. Terrazzo floors and sunlight coming in from clerestory windows make this space a lively place for people to gather.

"Every neighborhood should have a building like this," says Astin Jacobo, president of the Crotona Community Coalition. Jacobo is the person who picked up the torch from Mary Mitchell and has fought for many years to get the building approved, funded, and built. Talking of the role of the Mitchell Center, Jacobo explains, "We get the kids together. We use the kids to bring the whole community together."

The strategy seems to be working. "When we started this project," says Hirsch, "there were empty lots all around. Now the area is filling up with lowrise housing." ■

Sources
Brick: *Belden Stark (velour gray)*
Modified bitumen roofing: *Johns-Manville*
Standing-seam sloped roof: *MBCI*
Aluminum windows: *Winco*
Glass block: *Pittsburgh Corning*
Insulated aluminum fascia panels: *Columbia Architectural Products*
Acoustical ceilings: *Armstrong*
Movable interior partition: *Modernfold/Styles Inc.*





1. *Workshop*
2. *Mechanical*
3. *Classroom*
4. *Recreation*
5. *Staff*
6. *Playground*
7. *Storage*
8. *Multipurpose*
9. *Entry*
10. *Administrative*
11. *Counseling*

The street facade of the center (below) is just one-and-a-half stories high. In the back, the building helps define a playground (bottom).





5 CineDome Indianapolis, Indiana

A LARGE-SCREEN THEATER BY BROWNING DAY MULLINS DIERDORF HELPS UPDATE THE IMAGE OF THE INDIANAPOLIS CHILDREN'S MUSEUM.

by Clifford Pearson

Project: *The CineDome at the Children's Museum, Indianapolis, Indiana*
Owner: *The Children's Museum of Indianapolis*
Architect: *Browning Day Mullins Dierdorf Inc.—Jonathan R. Hess, partner-in-charge; William N. Bernard, project manager; Thomas A. Rourke, project architect; Somsri Bond, Scott Travis, project team; Jeff Bolinger, project director, landscaping*
Engineers: *Charlier, Clark & Linard (civil); McComas Engineering (structural); Merrick & Company (M/E/P)*
Consultants: *Fisher Marantz Renfro Stone (lighting); Merrick & Company (acoustical and large-format theater)*
Construction Manager: *F. A. Wilhelm*

Size: *35,000 sq ft (building); 15,000 sq ft (theater)*
Construction cost: *$14 million (including landscaping and rehabilitation of part of existing museum)*

Since 1925, growing up in Indiana's capital city has invariably meant trips to the Children's Museum of Indianapolis. So adding onto and changing this local landmark was a risky endeavor, one that could easily have run up against nearly every resident's cherished childhood memories.

The museum itself has grown up quite a bit, and with 300,000 sq ft of space on a 17-acre site, it is now the largest children's museum in the world, receiving 1.3 million visitors a year. Under the direction of president Peter Sterling for the past 15 years, the museum has been expanding its reach by trying to attract older children and those from the surrounding inner-city neighborhoods. (In the past, most kids running around the building were under eight and from outlying parts of town.)

A new CineDome Theater, which shows movies projected onto a giant hemisphere-shaped screen, plays an important part in Sterling's strategy. Designed by Browning Day Mullins Dierdorf (BDMD), an architecture and planning firm in Indianapolis, the CineDome presents a whole new image for a museum that had erected some rather staid buildings in the 1970s and 1980s.

Located at the main entrance to the museum on Illinois Street, the project includes not just the new theater but also a "festival park" in front of the existing museum and some recladding of the old buildings. BDMD attracted Sterling's attention after completing work on the Eiteljorg Museum of American Indian and Western Art in Indianapolis [RECORD, May 1991, pages 104–9].

BDMD's first task was helping the museum with strategic planning, which led to work on a new master plan for the complex. "We wanted more than just a theater. We wanted a building that helps define a campus," explains Sterling.

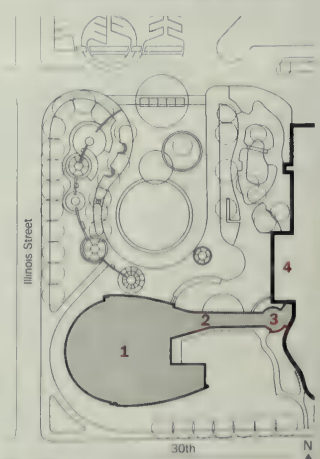
"The museum was interested in expanding its demographics," says Jonathan Hess, the partner in charge for BDMD and the designer of the Eiteljorg. "They wanted to understand what impact new programs would have on facilities, and how expanded services would impact programs."

The CineDome is one way the museum is reaching out to older kids and trying to increase the amount of time visitors spend at the institution. "Our audience got taller as a result of this project," says the museum's Sterling. "They wanted the theater to present a new, dynamic image for the museum," explains Hess.

One of the challenges facing the architects, explains Hess, was the internal focus of the theater's activities. "You have a building with no windows and little sense of scale. How do you make it work as part of a larger institution, especially one aimed at children?" As Sterling explains it, "We asked kids what they wanted from the theater and they said a place that's bright, colorful, and inviting. But a theater is by nature a dark place."

Hess and his associates decided it was important for the building to offer visitors a peek of what's going on inside. So the theater's dome emerges from a brick-and-precast-concrete cone that's tipped at five degrees and sliced off at the top.

Diamond-patterned brickwork

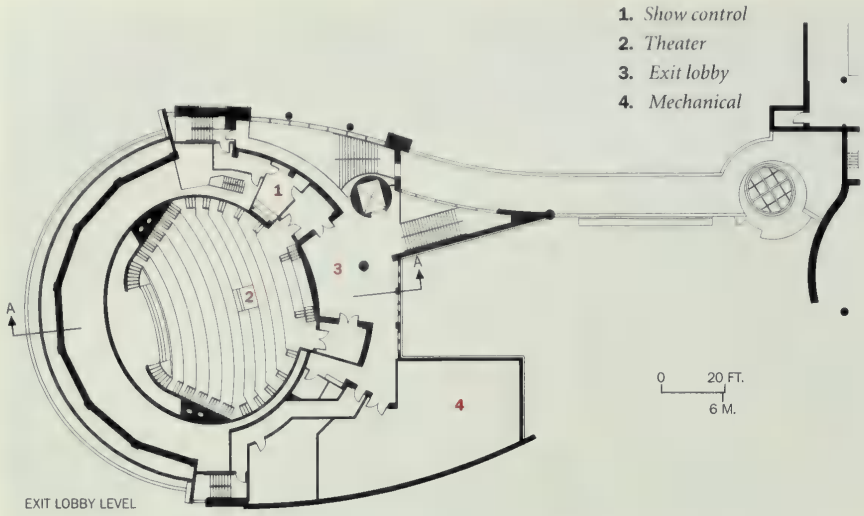


FIRST FLOOR PLAN

1. *CineDome*
2. *Connector*
3. *Night entry*
4. *Museum (existing)*

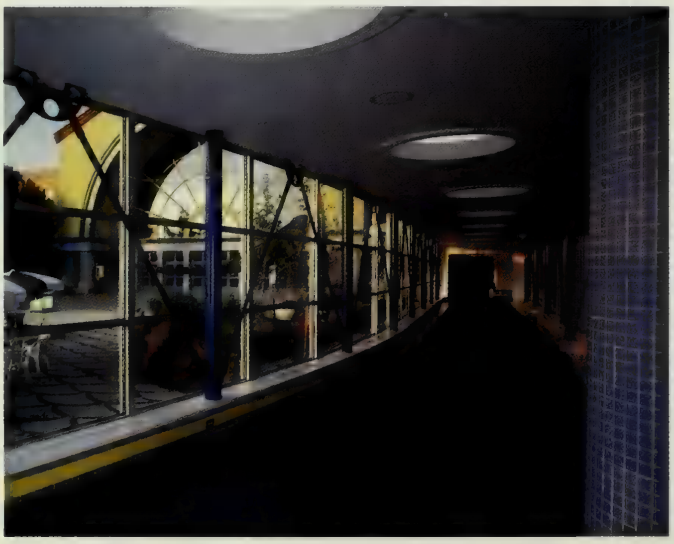


The $16 million project included the theater building (above), recladding part of the existing museum (left in photo above), and a connector (below).



Section
1. *Upper media room*
2. *Exit lobby*
3. *Projection room*
4. *Entrance lobby*

Public spaces, such as the theater lobby (bottom), the stairs (opposite bottom), and the connector between the theater and the museum (below) are bright and colorful. Both the seats and the hemisphere-shaped screen are angled (opposite top).





and precast panels set an energetic tone for the project, one that is carried over to the boldly striped EIFS surface added to the 1970s portion of the museum. The lively surface treatment "helps us create some movement around the building," explains Hess.

A different kind of movement is critical to the success of the interiors. Because more than 300 people leave the theater at the same time that another 300 are entering, the architects provided separate means of access and egress. Visitors enter the theater on the lower level, where movie-projection equipment and machinery is on display, and then leave from the upper level of the sharply raked, two-and-a-half-story-high theater. A curving 12-ft-wide corridor glazed on both of its long sides connects the theater to the rest of the museum.

Because sound is an important part of the CineDome experience, acoustics were a key concern in designing the building. Not only is the large-format movie theater "an acoustically demanding environment," says Hess, but the site is near a busy street, close to a fire station, and in line with flight patterns from the local airport.

"We needed a solid exterior for the shell of the building with virtually no sound penetration." As completed, the building has a six-in. precast-concrete shell on the outside with a three-ft air space behind it and then two ft of sound-attenuating wall with layers of gypsum board, battens across steel studs, and acoustic blankets.

Inside the theater, movies are projected onto a perforated-aluminum hemisphere that is hung from a geodesic space frame. The space frame sits on a compression ring tilted at a 30-degree angle, the same as the viewers' seats. Speakers are installed behind the projection screen.

Air-handling was another tricky issue. Noise from air circulation was a major concern. As a result, the theater is equipped with 60-in. ducts that move air slowly and quietly. Positive air pressure is maintained to minimize dust that could interfere with the movie projection.

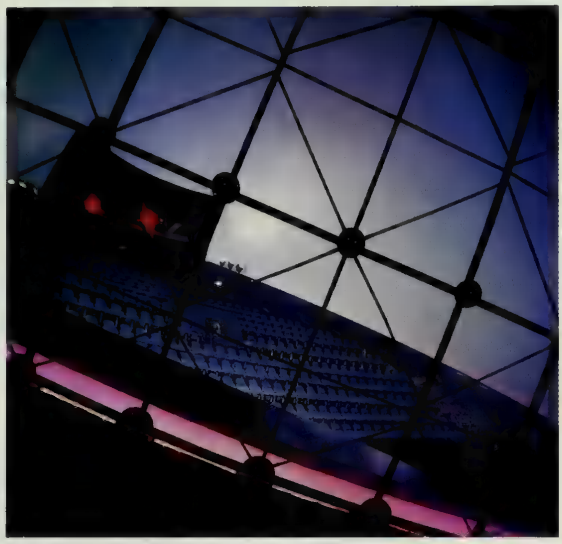
The 35,000-sq-ft building with its 15,000-sq-ft theater was constructed on a fast-track schedule and cost $14 million (including landscaping and rehabilitation of part of the old museum exterior). ■

Sources
Curtain wall and aluminum windows: *Kawneer*
Metal panels: *Alusuisse Composites (Alucobond)*
Roofing: *Firestone Building Products*
Ceramic wall tile: *American Olean*
VCT flooring: *Armstrong*
Theater seating: *American Seating*
Carpet: *Collins and Aikman/Durkan*



SECTION A-A

0 10 FT.
3 M.





6 Johnson County Central Resource Library Overland Park, Kansas

A SUBURBAN LIBRARY SYSTEM GETS ITS MONEY'S WORTH, RECYCLING A PRECAST-CONCRETE DISCOUNT STORE INTO A NEW MAIN BRANCH.

by Charles Linn, AIA

Project: *Johnson County Central Resource Library, Overland Park, Kansas*
Owner: *Johnson County Library System*
Architect: *Gould Evans Goodman Associates—Robert Gould, AIA, principal in charge; Dennis Strait, AIA, project manager; Robert Swindler, AIA, project architect; David Reid, AIA, project designer*
Consultants: *Bob D. Campbell & Co. (structural); Massaglia, Neustrom, Bredson (mechanical/electrical); Yarnell Associates (lighting); Shafer, Kline & Warren (civil); Acoustical Design Group (acoustics)*
General Contractor: *Jenkins & Associates*

Project Statistics
Cost: *$12.5 million including construction, equipment, site, and other costs*
Size: *85,000 sq ft*

Sources
Steel joists: *Vulcraft*
Curtain wall: *EFCO (Don Reynolds)*
Exterior concrete coating: *Tnemec*
EIFS: *Senergy*
Built-up roofing: *Tamko*
Clear and tinted low-e glass: *Viracon*
Steel windows, entrance: *Hope's Architectural Products*
Wood doors: *VT Industries, Maiman*
Ceiling systems: *USG Interiors, Celotex, Chicago Metallic*
Carpeting: *Interface Carpet*
Resilient flooring: *Forbo, Armstrong*
Lighting: *Columbia, LSI, SPI, Lutron*
In-floor power: *Walker Duct*

Johnson County, Kansas, a sprawling suburb southwest of Kansas City, has experienced explosive growth over the last decade, and has seen the yearly circulation of its 12-branch library system double in the last 10 years, from 2 to 4 million books per year.

When county librarian Mona Carmack spotted a former warehouse-type discount department store for sale in 1991, she thought it would make an ideal site for a new central library. Like many of its kind made obsolete by cutthroat competition from other discount chains, the building offered easy access from the street, lots of parking, and long roof spans that would allow flexibility in placing interior partitions.

The structure wasn't as big as some of the libraries studied in proposals to solve the county's library woes, but Carmack was already rethinking what kind of building was really needed. "The needs of leisure readers could be met by strengthening the branch libraries," she says, "while research, increasingly done by computer, could be at a smaller central library." Recycling the existing building would also allow for major cost and construction-time savings, depending on how much of the structure, shell, and mechanical equipment could be reused. When the building was renovated, it could be fitted with ducts to carry wiring for computer networks. In addition, recycling would serve as a good object lesson for library patrons.

Still, while architect Robert Goodman shared Carmack's concerns with environmental responsibility, as well as her desire to save money by recycling, he wasn't prepared for his first glance at this building. "It was a dog," he says of the almost windowless 85,000-sq-ft, precast-concrete tee structure. Inside, the space seemed oppressive and disorienting, despite 20-ft ceilings.

With Carmack's encouragement, the architects undertook a feasibility study. They found that with a 5,000-sq-ft addition, the building would easily accommodate several parts of the library's program: to completely change the character of the building, to introduce daylight, and to express the building's functions to passersby. The 30-by-30-ft column grid would easily allow the constant alterations that are inherent in current libraries' operations. But the best news was that in recycling the old store, the library would save $2 million in construction costs over a new building.

To make the disorienting interior of the building manageable, the architects organized the building as if it were a village, establishing major corridors as main streets. Nodes, in the form of conference rooms and offices, are painted in bright colors to serve as landmarks. Throughout the building, ceiling heights have been altered and skylights added to further change the once monotonous character of the existing building's continuous-height ceiling.

The addition, which is skewed slightly from the grid of the original building, includes the entry, the reception area, stacks, and meeting rooms. It was added to the front of the existing structure and faces a

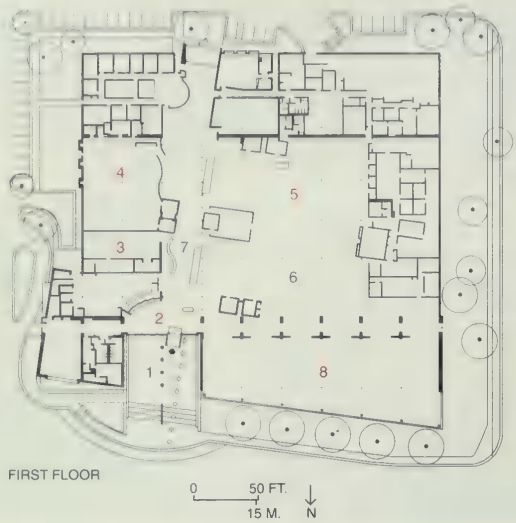


EAST ELEVATION





The front elevation of the library, with its entry plaza (above) and decoratively lit meeting room (below), disguises a former 99¢-up concrete discount store.



1. *Entry plaza*
2. *Forum (checkout)*
3. *Public computers*
4. *Youth services*
5. *General reference*
6. *Business research*
7. *Periodicals*
8. *General collection*



An arched ceiling covers a street used to define circulation. Skylights (below) were punched into the roof over a reading room. Books are checked out (bottom) in the forum.





road that carries a high volume of traffic. Large windows on the front elevation of the addition allow daylight into the north stacks area and a meeting room.

The forum, the library's reception area, acts as a town square in its prominent location just inside the front doors. It is in the form of a half-cylinder, with the top sliced off at an angle, and is covered with glass to create a welcoming, daylit space.

A void has been carved out of the building at the entry to form an entry plaza with a small garden, and a canopy provides shelter for visitors. Within the stacks and meeting rooms at the front of the building, fluorescent lamps covered with blue gels are tucked into coves over the windows. At night they add a ribbon of color that is visible through the windows at the front of the building.

Where the structure was left intact, every other precast tee has had a window punched through it, and the tees have had three rows of aluminum sections fastened to them parallel to the ground. Cable has been stretched between the sections to support wisteria in the future.

Under-floor wiring installed when the building was renovated can be accessed easily enough to respond to the library system's changing needs. The central resource library has dedicated terminals that can access the card catalog, as well as personal computers for business research, business applications, and access to the Internet. Terminals located in the library system's 10 smaller branches can also dial into the system and access information.

"In the future we will be moving rapidly toward a client-server environment," says Jim King, the library's computer systems specialist. There will be few, if any, terminals dedicated to one use, like searching the card catalog, and more terminals that demand more connections and wiring. In the two years since the library opened, the number of personal computers has increased from 67 to more than 85.

The architects anticipated the addition of more computers onto the library's network by installing an extensive under-floor system of ducts served by a U-shaped main duct that parallels the north, west, and south walls. "The duct system," says King, "can be accessed every five feet, and the ducts are big enough to carry both power and data lines."

Recycling the building saved an impressive amount of embedded energy and materials that would have been lost if the structure had been demolished, including 555 tons of coal, 501,402 cubic yards of natural gas, 82.5 tons of steel, and 1,500 cubic yards of concrete. ■

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CIRCLE 60 ON INQUIRY CARD



Inside eve

details

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From: New Microsoft Project 98
Date: Wednesday, 10:45 a.m.
To: Project Manager
Re: One more little thing...

If we could download what you know about project management to the rest of your company, we'd do it. Instead, we did the next best thing: we designed the new Microsoft Project 98. So now, no matter how complex the project, no matter how many projects are going on, Microsoft Project 98 is all over the details. Managing every project in your company. Charting all the resources you have at your disposal. Tracking every task on every job in every project. With multiple views that let you look at every project from every angle. With the drill-down detail that tells you instantly what's wrong, whose beeper gets beeped, and when you'll be back on track. So on the outside, Microsoft Project 98 may look like the easiest project management software ever developed. But on the inside, it'll build the Panama Canal. For the details, check out our Web site at www.microsoft.com/project/.

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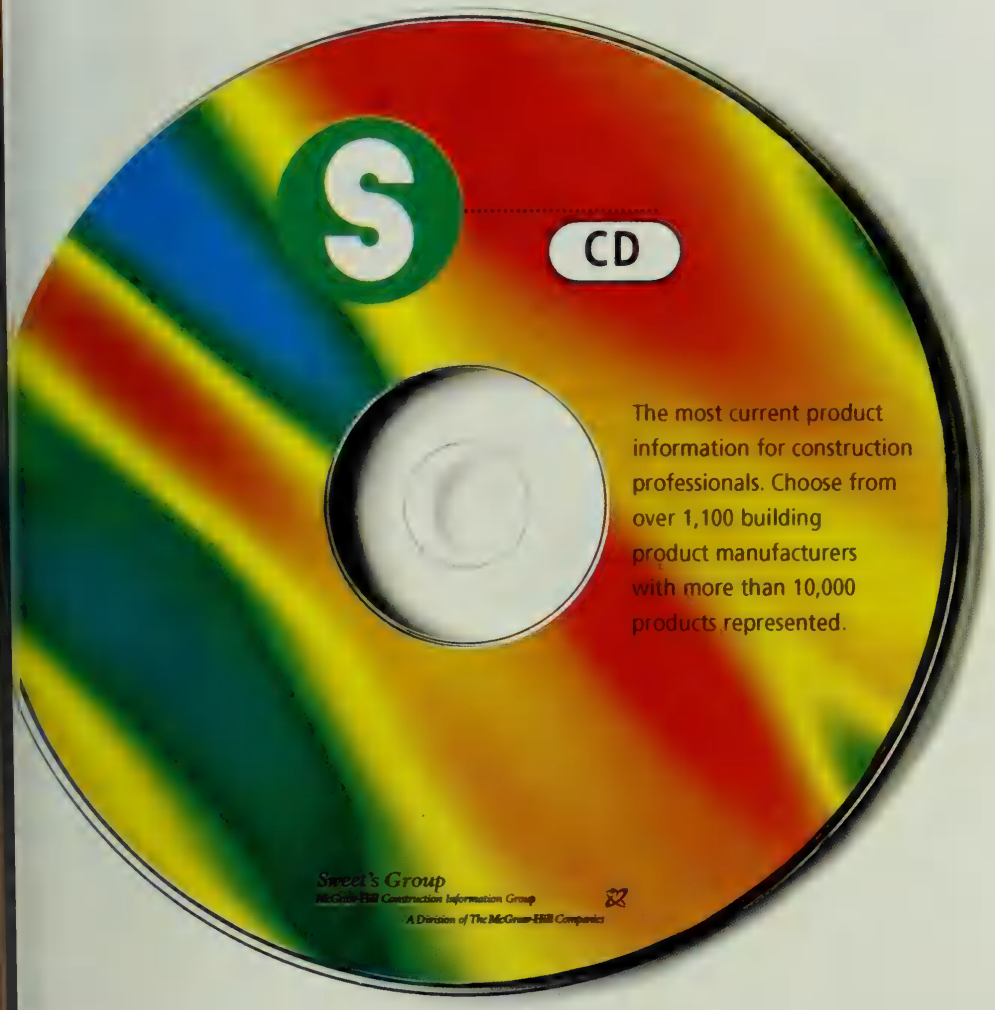
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CIRCLE 30 ON INQUIRY CARD

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Barbara Kristiansen, Lighting Designer
Light/Research & Design, Inc., Rhode Island

Lighting designer Barbara Kristiansen knows the ultimate judge of her work is how well it functions. "I design within architectural and interior spaces to accent, reveal and illuminate. To me, dimming is crucial." Ms. Kristiansen also specifies Lutron lighting controls because of the quality of their technical support. "When you call with a question, you talk to an engineer; someone who can help you with even the toughest problems and give you *accurate* information. That's important to me and the electrical contractor."

Ms. Kristiansen also knows the importance of keeping her clients satisfied, so she appreciates the way "Lutron's aesthetic simplicity complements the surrounding environment" and how Lutron lighting controls save energy, extend lamp life, and add functionality to any location. As she says, "I know I can depend on Lutron. They're a superb company with a reliable, high-quality product. And for support – they really are the best I've found."

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CIRCLE 31 ON INQUIRY CARD



PRODUCT REPORTS

For more than 20 years ARCHITECTURAL RECORD has featured Product Reports in the December issue. Last year we initiated a new way to select the products that are most likely to interest our readers: we appointed a panel of architects to act as a review board. In 1996 panel members were drawn from firms based in New York City; this year the board was made up of prominent Chicago architects.

To obtain the widest possible view of the industry, RECORD asked manufacturers to submit information—both text and illustrations—on "new and useful building products to be available to the architect, specifier, and designer in 1998." Unlike other product-design "contests" that involve stiff entry fees, ours required none. The review board conscientiously examined each of more than 600 submissions, sent in by hundreds of manufacturers.

The panelists reviewed each entry to identify the new products that meet the requirements of today's marketplace, from wiring-distribution solutions for outdated office spaces to hurricane-resistant glazing for high-rise condominiums. They reviewers also looked for new products that offer real improvements or innovations in performance, appearance, and value. Their mission was to ferret out products that they felt their fellow architects would see as newsworthy.

Among the qualities valued by the panel, simplicity ranked high. A luminaire that brought attention to the light instead of the fixture, for instance, and a radiant-heat panel that was sleek but not over-engineered won kudos. Also valued was technology that has evolved from custom-order-only to off-the-shelf, such as an energy-efficient ice-storage air-conditioning system that is now affordable for school districts, not just for high-end corporations. The panel maintained a healthy skepticism toward manufacturers' unsupported claims of innovation. "Very nice, compared with what's on the market" was high praise indeed.

Some apparent trends noted in the 1997 product submissions were new ways to insert data and power cabling into existing facilities, or to upgrade elevators, or to meet new fire-code requirements by modifying existing doors. Several new architectural-glass products were submitted, as well as thermally efficient and hurricane-resistant framing systems. And a product the panel would like to see? Pull-out, accessible drinking fountains that can fold down for use and be stored out of the way in a niche when not needed.

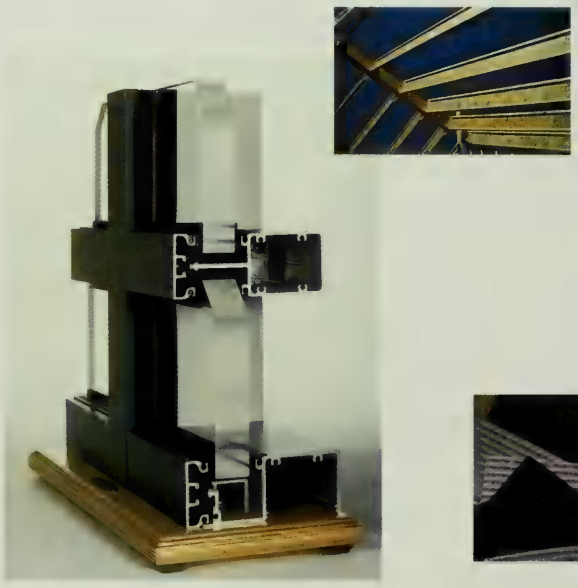
RECORD thanks all those manufacturers who took the time to submit products, and we look forward to reviewing even more in our 1998 Product Reports.—Joan Blatterman

The 1997 Product Reports review board, left to right: **Mark Sexton,** *AIA, Krueck & Sexton Architects, whose Brick and Glass House appeared in* RECORD Houses, *April 1997.* **David Woodhouse,** *AIA, principal, David Woodhouse Architects, whose Chapel of the Word was featured in the September 1997* RECORD. **Carol Ross Barney,** *FAIA, principal, Ross Barney + Jankowski Architects, a firm with expertise in educational and transportation facilities.* **Randolph Guillot,** *AIA, Senior Designer with Perkins & Will Chicago and formerly with Ellerbe Becket, Inc.* **Andrew Tobisch,** *Vice President–Design of the McClier Corporation.*

91 Computers
[illegible] Site Furnishings
101 Materials
104 Thermal & Moisture
109 Doors & Hardware
[illegible] Windows & Glazing
119 Finishes
120 Specialties & Equipment
[illegible] Furnishings
126 Special Construction
128 Mechanical
130 Lighting

READERS' CHOICE Awards 1997

Inaugurated in 1996, the Readers' Choice Awards Program is ARCHITECTURAL RECORD's way of recognizing manufacturers of building products, systems, and materials who make a meaningful contribution to successful architectural projects in this country. In order to identify the firms that architects rely on to furnish superior products for incorporation in a facility design or interior scheme, we asked our readers. A survey, circulated in the August 1997 issue, requested information about preferred building products—those that design professionals work with, design for, and specify to meet real-world project needs, performance criteria, and budget restraints. We sought nominations in 25 different categories, from computer tools like CAD software to interior light fixtures. For each of these categories, readers listed a single manufacturer whose product best represented—in their opinion—an optimal combination of design, cost, value and service life for that type. The firms that received the most votes within each category are our winners. In acknowledgment of the significant contribution made by building product manufacturers to architectural practice, we congratulate the winners of ARCHITECTURAL RECORD's Readers' Choice Awards for 1997.



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Alusuisse Composites, Inc.
77 W. Port Plaza, St. Louis, MO 63146; 800/382-6445; www.alusuisse-comp.com

Armstrong World Industries
POB 3001, Lancaster, PA 17604; 800/448-1405; www.armstrong.com

Belden Brick
POB 20910, Canton, OH 44701; 330/456-0031; www.beldenbrick.com

Julius Blum & Co.
POB 292, Carlstadt, NJ 07062; 800/526-6293; www.juliusblum.com

Carlisle SynTec Systems
POB 7000, Carlisle, PA 17013; 800/4-SYNTEC; www.carlisle.syntec.com

Gateway 2000
POB 2000, 610 Gateway Drive N., Sioux City, SD 57049; 800/846-4875; www.gw2k.com

Hewlett Packard Co.
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Interface Americas Carpet Brands
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Kawneer Co., Inc.
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Kim Lighting
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Pella Corporation
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PPG Industries, Glass Group
1 PPG Place–38 W., Pittsburgh, PA 15272; 412/434-2329; www.ppg.com

Schlage Lock Co.
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Smith & Hawken
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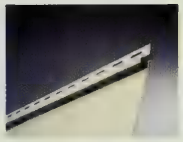
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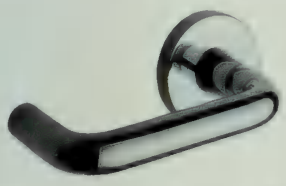
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1004 E. 4th Street, Marshfield, WI 54449; 800/869-3667; www.doors.wy.com

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Residential Window	Andersen Corporation
Resilient Flooring	Armstrong World Industries
Roofing System	Carlisle SynTec Systems
Site Furniture	Smith & Hawken
Unit Masonry	Belden Brick







Winners

THE BEST REPS

The final question on the 1997 Readers' Choice survey asked, "Who has the best rep? Name the individual who consistently makes critical contributions to projects, who helps solve a technical or site problem, or who often helps you with technical and design information." Many readers who responded to the survey answered this question, citing a manufacturer's representative or technical support person on whose advice they rely; a few reps were mentioned more than once.

Considering the substantial investment this trained sales force represents, we're delighted to recognize these individuals, and we thank them for a job well done. The representatives cited by RECORD readers are listed in alphabetical order by manufacturer.

Manufacturer/Representative

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Don Hesser
A/D Firefilm
Gerald M. Dinerman (PSI Acoustical)
AFM Corporation
Chris Jekel
Mark Allen Associates
Jeff McCarthy
Amcon Block
Jeanne Blonigen
Andersen Windows
Ken Biachi
Peggy Bray
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Mike Cosgrove
Angelo Dinardo
Mary Grooters
Larry Lontz
Apple Computer
Entire support staff
APA/Engineered Wood Assn.
Bob Appenzeller
Armstrong World Industries
Lee Baggett
Bernard Baskerville
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Ray Wheeler
Arrowwal
Bill Morris
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Pam Cox
Baldinger Architectural Lighting
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Gary Indiano
Bentley Mills, Inc.
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Brian Little
Mike Smith
Janet Sweeney

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Tom Underhill
CertainTeed Corp./Roofing
Mike Anusbigian
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Dale Schleppenbach
Collins & Aikman Floor Covering
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Columbia Brick
Ron Spurain
Columbia Lighting
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C/S Group
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Forbo Industries, Inc.
Mimi O'Keefe
Fuller-O'Brien
Jarrod Anderson
Franklin Brick
Jimmy Jones

The Garland Co.
Allen Orlacchio
Greg Rose
Gordon Rossi
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Brad Burdic
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Marvin Windows & Doors
Larry Hamby
Andrew Herman
Julie Obidowski
(continued on page 161)

ERFECTIONIST

"In the Louvre, even the wallpaper must be immortal."



Thure Svensson, Product Designer, Mitex

Thure Svensson is a perfectionist.

He designed a fiber glass wall covering to resist bacteria, withstand wear, meet the strictest fire laws — and look good — in hotels, hospitals, offices and museums.

And other perfectionists — the architect for the recent renovation of *La Cours Carrée* in the Louvre, for instance — use it to protect and complement their masterpieces.

Mr. Svensson and his company, Mitex, in Sweden are an important part of Johns Manville.

The fact is, we're a world leader in glass fiber for insulation, filtration, acoustics, roofing and more.

You'll find us in homes, autos, buildings, appliances, spacecraft — everywhere.

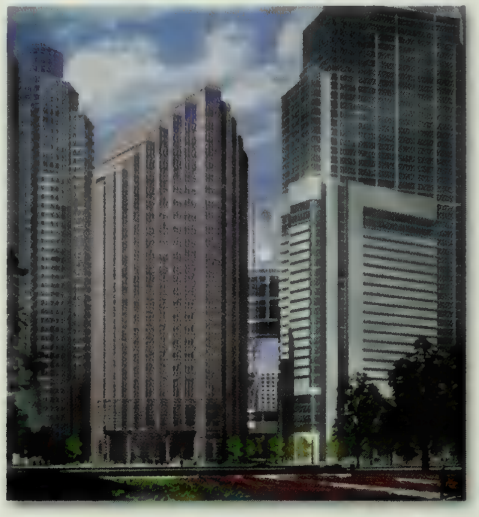
Thanks to perfectionists like Thure Svensson.

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CIRCLE 32 ON INQUIRY CARD

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CIRCLE 33 ON INQUIRY CARD

GRAPHISOFT®

Top left: Architect, Sydness Architects, modeled & rendered by The Drawing Studio. Top right: Design by Kayhan International Limited, modeled & rendered by Architechnology. Bottom left: Architect, Hines, Inc., modeled & rendered by The Drawing Studio. Bottom right: Architect, GruzenSamton, modeled & rendered by The Drawing Studio. ArchiCAD and Graphisoft are registered trademarks of Graphisoft R&D Software Development Rt.

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Developed by architects specifically for the creation, production, and management of architecture, Arris 7 2D drafting and 3D modeling software offers 150 new features, including customizable menu icons, shortcut commands, and productivity boosters such as dynamic viewports and programmable mouse buttons. 888/990-0900. Sigma Design International, Alexandria, La. **CIRCLE 155**

Cross-platform CAD software

Low-cost ($595) MiniCAD 7 now offers true 3D Boolean solid modeling, auto wall framing, QuickDraw 3D modeling, a Light Creation tool, and other enhancements to the stand-alone design, presentation, and estimating program for Macintosh and Windows 95/NT. 800/MiniCAD. Diehl Graphsoft, Inc., Columbia, Md. **CIRCLE 156**

Better for bigger buildings

MicroStation TriForma, a modeling and construction-documentation product, can now handle the largest buildings in the world, due to improvements in the program's performance on large data sets and more efficient storage. A complete section of a 30-floor building can be generated in 4 minutes. www.bentley.com. Bentley Systems, Inc., Exton, Pa. **CIRCLE 157**

"Intuitive" set of tools

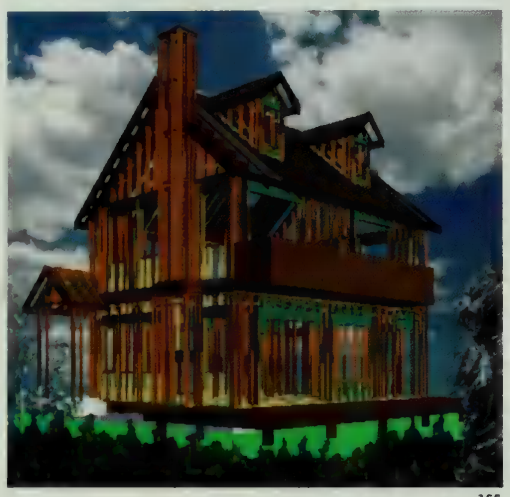
Designed by architects for the Power Mac, DenebaCAD integrates 2D drafting, interactive 3D modeling, and photorealistic rendering in a single, $799 application. The software uses fast, generic, design-oriented tool technology for precise control. 305/596-5644. Deneba Software, Miami. **CIRCLE 158**

Built for compatibility

AutoCAD LT 97, a 2D program fully compatible with Auto CAD 14 and 13, is described as a low-cost, easy-to-learn CAD tool that helps designers and drafters share drawings and related data with all levels of users over the Internet. 800/225-1076. Autodesk, Inc., San Rafael, Calif. **CIRCLE 159**

Collaboration software

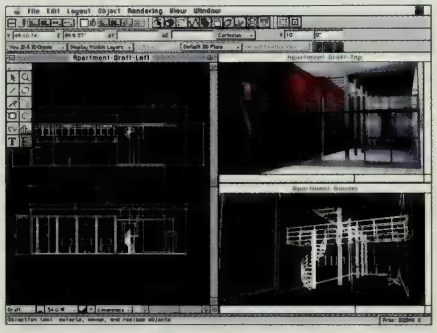
ArchiCAD for TeamWork, offered for both Windows 95/NT and Macintosh, is a "dramatic" way to share the work of designing and drafting on a single building. It is described as ideal for large-scale projects with tight deadlines. 800/344-3468. Graphisoft, San Francisco. **CIRCLE 160**



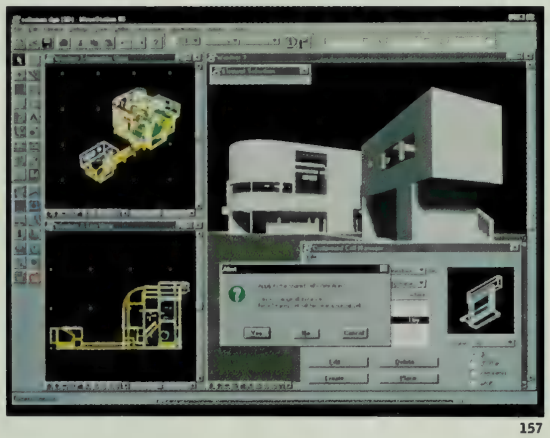
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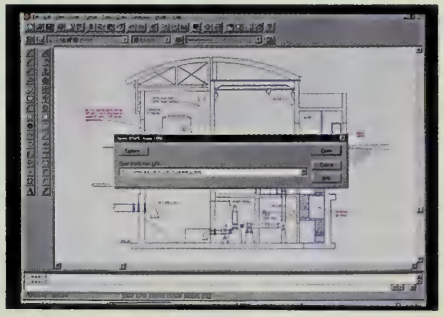
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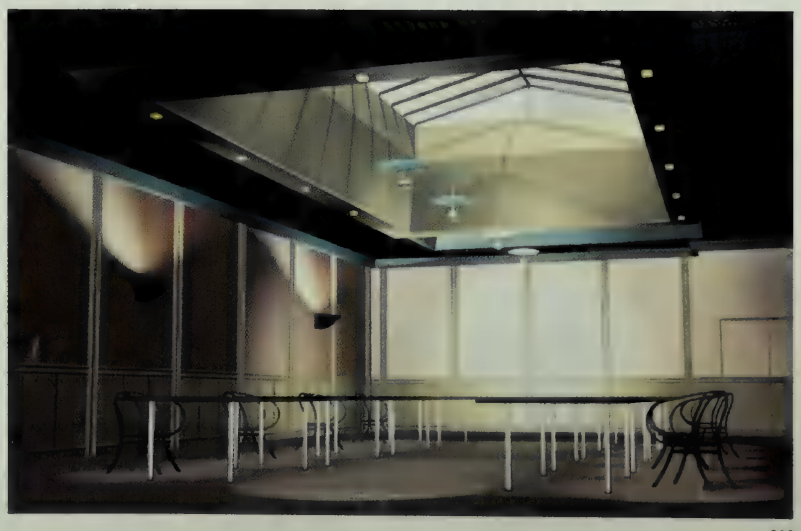
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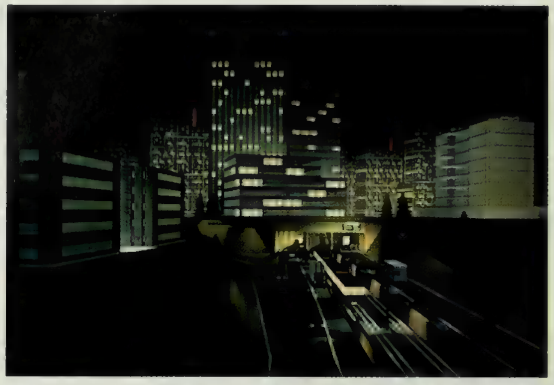
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COMPUTERS

CAD Software • Rendering Programs • Hardware

AutoCAD en suite

Now in Release 2.0, Autodesk's AEC Professional Suite provides a "powerful" design solution sold as a cost-saving package that includes AutoCAD 14, AEC AutoCAD utilities, WalkThrough animation, and DesignBlocks building-product details. Autodesk View lets firms share design information and get feedback from managers and clients who don't know CAD. 800/964-6432. Autodesk, Inc., San Rafael, Calif. **CIRCLE 161**



161

Speedier workstations

Intergraph's TDZ units, Windows 95/NT–based 3D graphics workstations powered by dual Pentium II processors, start at a competitive $6,995. New features include a desktop management system and RealiZm 3D graphics accelerator. 800/763-0242. Intergraph Corp., Huntsville, Ala. **CIRCLE 162**



162

Organic 3D modeling

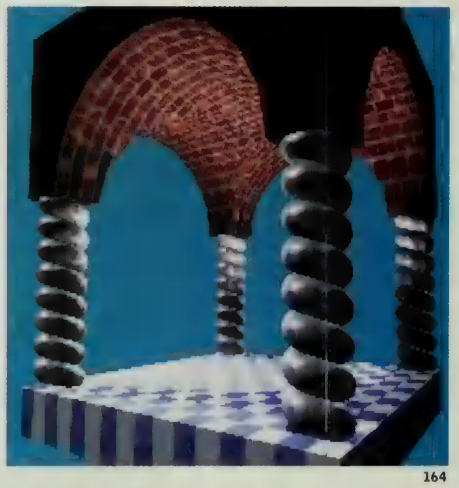
Described as easy to use, Form•Z RenderZone 2.9, for Macintosh and Windows 95/NT, is said to produce photorealistic images at "impressive" speeds, with shading technology capable of seven levels of advanced rendering effects. 614/488-8838. Auto.des.sys, Inc., Columbus, Ohio. **CIRCLE 163**



163

AutoCAD 14 plug-ins

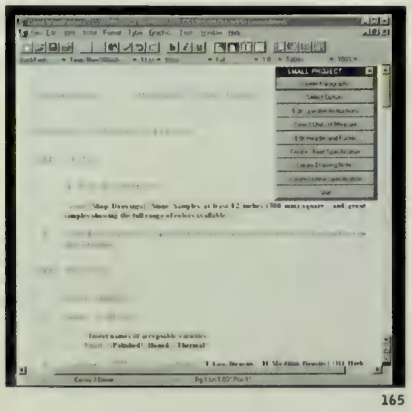
The first of new architectural add-ons for AutoCAD 14, the freeform modeler interfaces with ObjectARX object-intelligence to produce massing studies, conceptual modeling, and schematic and component design. Its price is a plus: $99 when downloaded from www.arch14.com (Web site). Nemetschek Systems, Inc., Mill Valley, Calif. **CIRCLE 164**



164

Short-form specifications

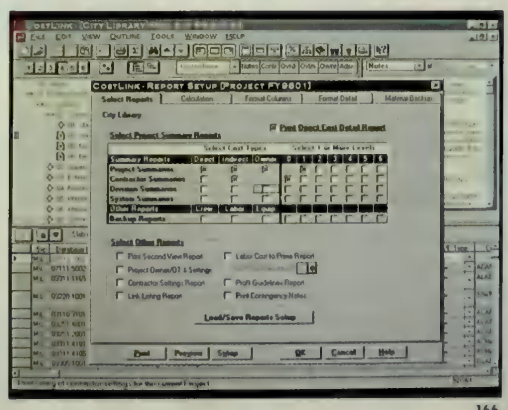
An abbreviated version of Masterspec, Small Project is a software library with 160 brief sections geared toward simple residential, renovation, tenant fit-out, FM, and light-commercial projects. 800/424-5080. ARCOM Master Systems, Salt Lake City. **CIRCLE 165**



165

Estimating software

Windows-based CostLink 1.5 works from early budgeting through final costing; users can incorporate unit prices from Means or other databases. Reports can be generated in English dimensions, metric, or both. 800/875-0047. Building Systems Design, Inc., Atlanta. **CIRCLE 166**



166

W VERSION!

MiniCAD® 7

Windows®/Macintosh®
The Easiest, Most Cost-Effective Way to Design

For more than a decade, architects seeking an out-of-box CAD solution have selected the award-winning MiniCAD. This standalone program lets you create everything from precise working drawings to sophisticated client presentations to extensive materials lists and cost estimates.



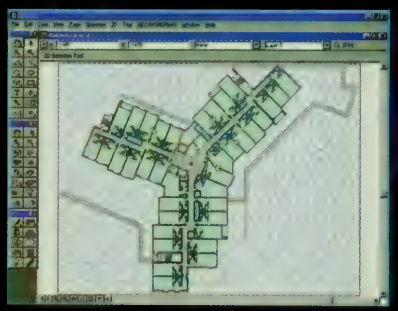
As always, MiniCAD 7 offers the same core features that have made it the program of choice for builders in more than 80 countries—multi-decimal accuracy for precise drafting, a built-in database/spreadsheet to track costs and materials, cross-platform compatibility (Mac and Windows), and a macro programming language for automating complex and routine tasks.



Now this total CAD solution speeds your design process with these new features:

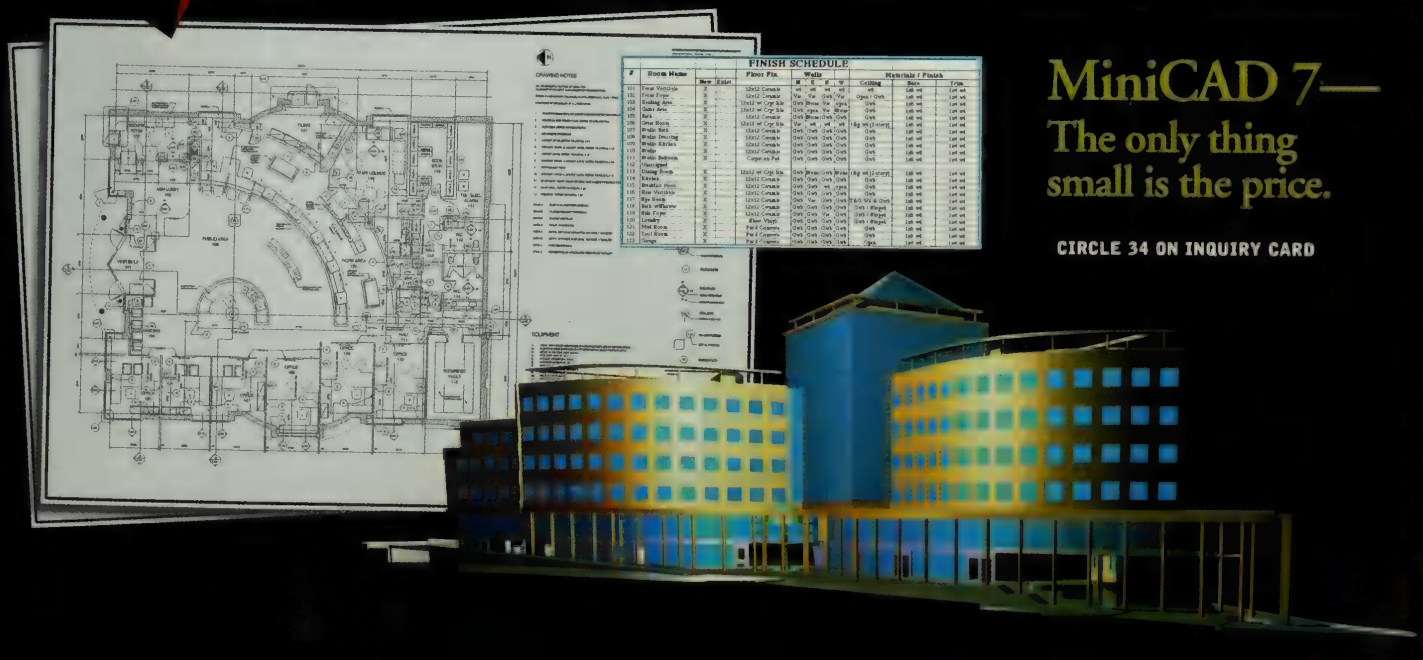
- True 3D Boolean Solid Modeling
- DWG and DXF Import/Export
- Dual-Unit Dimensioning
- Auto Wall Framing
- QuickDraw 3D Rendering
- Associative Hatching
- Automatic Wall Joining
- Next-Generation SmartCursor
- Precise Sun Positioning
- Expression Evaluation Inside Textboxes
- Automated Databases/Spreadsheets
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- Rotatable Grid and Customizable Coordinate System
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To learn more about MiniCAD's extensive feature set and why the program was voted "the easiest, most cost-effective way to design" by your peers at the first CAD Shoot-Out, visit our Web site www.diehlgraphsoft.com or call 1-888-MiniCAD.



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CIRCLE 34 ON INQUIRY CARD

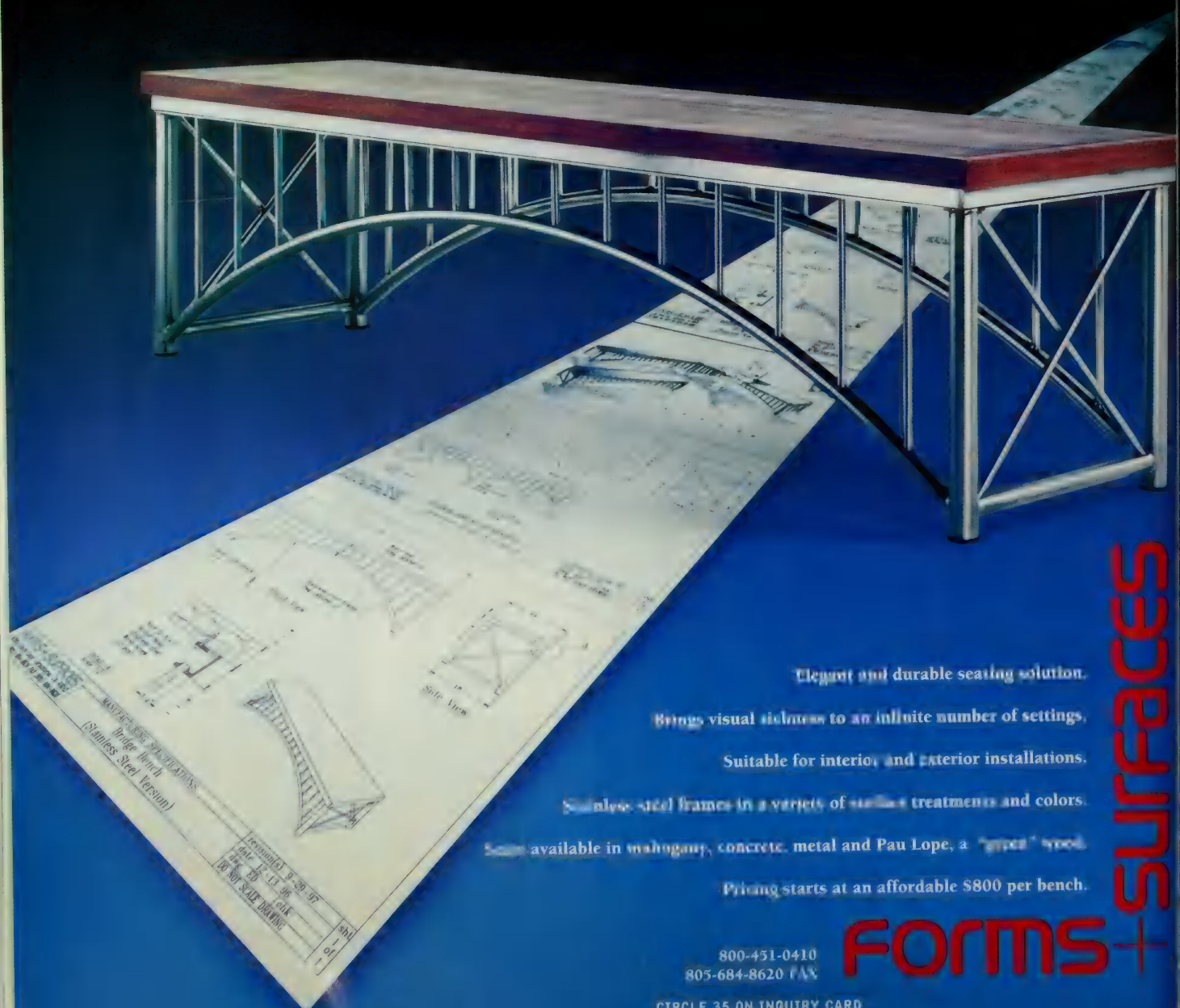
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CIRCLE 35 ON INQUIRY CARD

SITE FURNISHINGS

Landscape Accessories • Site Furniture • Fencing • Pavement

Cast-stone murals and signage

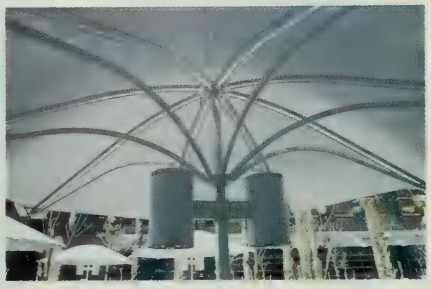
Sculptured high-relief graphics that are impervious to weather can be commissioned in cast stone or brick for sites such as urban parks or housing developments that need an attention-getting yet creative signature. 800/449-6599. Brickstone Studios, Lincoln, Neb. **CIRCLE 167**



167

Rain out, some sun in

The Solstice shade comes in three fixed-panel configurations for year-round use outdoors. The perforated-shade material repels rain but also lets diffuse sunlight illuminate the surface below. 800/521-2546. Landscape Forms, Kalamazoo, Mich. **CIRCLE 168**



168

Traditional park bench

Shown in a backless version, the Brighton bench collection is made with a powder-coated cast-aluminum frame and 3-in.-wide slats of mahogany or Ipe wood. The comfortable "waterfall edge" seats are assembled without exposed fasteners. 800/451-0410. Forms+Surfaces, Carpinteria, Calif. **CIRCLE 169**



169

Porous parking surface

A grid-and-ring assembly of recycled plastic backed with geotextile mesh, Gravelpave^2 can be used to create a parking lot or access road that doesn't require drains or sumps to handle stormwater. Rolled out on a graded gravel base, the grid is covered with 3/16-in.-size angular gravel (crushed granite is pictured); grids come in four colors. 800/233-1510. Invisible Structures, Inc., Aurora, Colo. **CIRCLE 170**



170

Period subway kiosk

A cast-iron subway entry and planter, designed by SOM as part of the renovation of Chicago's State Street, is typical of the scope of custom fabrication offered by this metalworking facility. Fountains, tables and seating, and other site furnishings are available in stock. 205/329-0486. Robinson Iron, Alexander City, Ala. **CIRCLE 171**



171

Trelliswork and arbor

Made of kiln-dried Iroko wood, Stuart architectural trelliswork is made from 2- and 4-ft-wide panels, top elements, and different post designs and finials assembled to suit the specific planting and access requirements of indoor and outdoor sites. 800/284-8325. Country Casual, Germantown, Md. **CIRCLE 172**



172

SITE FURNISHINGS

Landscape Accessories • Site Furniture • Fencing • Pavement

Solid surface out-of-doors

Chairs, stools, and tables, designed by Kipp Stewart, are made of thermoformed Corian solid-surface material over an extruded-aluminum frame. The polymer material permits cut-outs and interesting shapes while withstanding the UV exposure and harsh weather of an open courtyard. Pictured: Trees armchair in Mandarin color. 800/426-7426. DuPont Co., Wilmington, Del. **CIRCLE 173**



173

Bike rack on the curve

A floating construction of structural-steel tubing, the Circa 2000 rack needs no how-to instructions. Each unit holds up to eight bicycles, and can be ordered in surface-mount or in-ground styles. Finish options include galvanized, powder-coat, and stainless steel. 800/448-7931. Madrax, Inc., Middleton, Wis. **CIRCLE 174**



174

Large-scale outdoor table

The Cranberry Island table is large enough to seat six or eight people comfortably; the pedestal-style base and minimal apron make it wheelchair accessible as well. White marine-grade paint is standard; custom colors and woods may be specified. 800/456-6483. Weatherend Estate Furniture, Rockland, Maine. **CIRCLE 175**



175

Ornamental picket fencing

Compatible with historic as well as contemporary settings, the Olde Towne fence is made of powder-coated galvanized steel. Different post styles, finials, and ring designs can be combined to create a site-specific fence. Architectural details are available in both binder and CD-ROM formats. 410/633-6500. Monumental Iron Works, Baltimore. **CIRCLE 176**



176

Dining in

Suggested for "budget corporate courtyards" and industrial outdoor break areas, the Manistee table/bench is wheelchair accessible on two sides. 800/521-2546. Landscape Forms, Inc., Kalamazoo, Mich. **CIRCLE 177**



177

Wrought aluminum

The McNeill armchair is part of a line of classically styled metal tables and chairs suitable for landscape use, resort settings, or your own Georgian mansion. 804/358-2385. McKinnon and Harris, Inc., Richmond, Va. **CIRCLE 176**



178

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TCS®—Architectural stainless steel coated with a terne alloy. Introduced by Follansbee in 1967, TCS is a superbly functional roofing metal that requires no painting, weathering to an aesthetically pleasing dark gray. The use of TCS by many renowned architects is a tribute to its beauty and longevity.

And our new additions...

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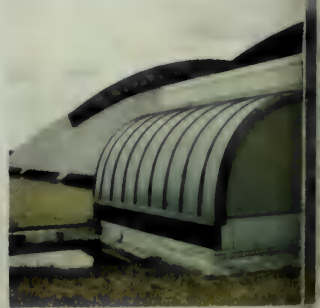
VIROTIN®—Copper-bearing carbon steel coated with ZT. It produces the same aesthetic and performance qualities as the original terne roofs. Its ZT coating provides excellent corrosion resistance, solderability and an excellent affinity for paint. The painted surface of VIROTIN replicates the dull oxided and stately appearance of early American "tin" roofs.

VIROMET®—Architectural stainless steel coated with ZT. Like VIROTIN, this new metal is the result of more than 5 years of intensive metallurgical research, and offers the architect a two-fold advantage. First, the architect is assured of the time-tested quality of a Follansbee produced product, second, there is no need to sacrifice corrosion resistance in exchange for environmental compatibility.

Both new metals promise excellent corrosion resistance in both industrial and marine atmospheres.



These 4 Follansbee roofing metals are available in many preformed accessories, thus reducing the overall installation time required to install them in one of their many traditional and modern forms. Follansbee engineers and metallurgists will be pleased to work with you to plan and detail the specifications for the use of these Follansbee roofing metals. Call us toll-free at 1-800-624-6906.



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CIRCLE 37 ON INQUIRY CARD

MATERIALS

Wood • Metal • Lumber • Laminates • Concrete • Masonry • Railings

Redwood siding

Finger jointing improves the yield and reduces waste from sustainably grown California redwood lumber. Made into smooth lengths of clapboarding, finger-jointed redwood is an economical and rot-resistant material for siding, trim, and fascia. A grade chart is offered. 415/382-0662. California Redwood Association, Novato, Calif. **CIRCLE 179**

Lightweight-concrete tables

A precast, colorful concrete, Syndecrete is available made into round tabletops for interior or exterior use, as well as custom-made counters, sinks, tubs, and tiles. 310/829-9932. Syndesis, Inc., Santa Monica, Calif. **CIRCLE 180**

Rock-face masonry units

The new Ultra Bold Face Renaissance block pattern is produced by a finishing technique that achieves a unique rocked face for each unit: no two pieces are identical. Colors include white, buff, rust, gray, paprika, bluegrass, sage, and olive. Computerized design software is available. 800/265-8123. Arriscraft International, Inc., Cambridge, Ont. **CIRCLE 181**

Stainless-steel laminate

A less costly option for architectural spaces requiring stainless steel or other metals as an interior finish on walls, cabinets, or furniture, DecoMetal is a high-pressure laminate with the decorative surface qualities of real metal. A sample program is available. 800/FORMICA. Formica Corp., Cincinnati. **CIRCLE 182**

Device keeps weeps clear

Mortar Net is now available in a more compressible version that makes it easily adaptable to variations in cavity-wall construction. Both original and soft Mortar Nets are designed to be placed on top of flashing, behind brick veneer, to catch and permanently hold mortar droppings away from weep holes, preventing deterioration, staining, and efflorescence due to trapped moisture. 800/664-6638. Mortar Net USA, Ltd., Highland, Ind. **CIRCLE 183**

Wood and nylon railings

Hewi's newest railing system combines solid-wood rails with colorful nylon connectors, supports, and mounting bases. Hand rails are a grippable 1 9/16-in. diameter. 717/293-1313. HEWI, Inc., Lancaster, Pa. **CIRCLE 184**



179



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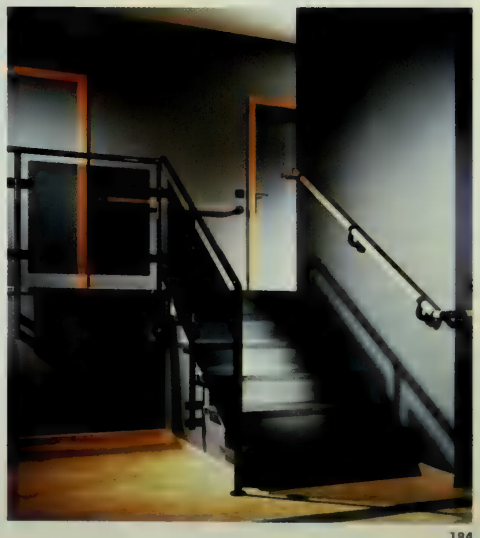
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184

MATERIALS

Wood • Metal • Lumber • Laminates • Concrete • Masonry • Railings

High-wind block walls

A 150-ft-high tower on Miami's South Beach was designed by Bermello Ajamil Associates, architects, using Solar White aluminum/glass-block panels. Panels weigh about 20 lbs psf. An inverted-T shape on the interior face stiffens the wall sufficiently to meet high wind-load requirements. 800/358-3888. Circle Redmont, Melbourne, Fla. **CIRCLE 185**

Architectural ornaments

Rosettes, moldings, and decorative friezes are made of weatherproof Sculpt-Stone exposed-aggregate material. Stock designs come in sizes from 8 to 48 in.; custom elements can incorporate logos, city seals, or other motifs. 800/771-4595. Pineapple Grove Designs, Delray Beach, Fla. **CIRCLE 186**

"American Country" laminate

Pionite's newest patterns include four variations of Fresco, described as a rag-rolled effect "evoking the muted shades of the American Country look." 800/746-6483. Pionite, Auburn, Maine. **CIRCLE 187**

Guide to manufactured stone

An interactive design tool, StoneCAD lets users visualize, select, and specify Cultured Stone. Made from Portland cement, rock aggregates, and iron-oxide colorants, Cultured Stone comes in patterns such as Ledgestone, River Rock, Cobblefield, and Fieldstone. Architectural details are included in AutoCAD, DXF, and PlotMaker formats. Free to design professionals. 800/255-1727. Stone Products Corp., Napa, Calif. **CIRCLE 188**

New timber from old

This mill specializes in reclaiming structural timbers from old sites such as warehouses and railroad trestles, and fixing them up by plugging holes, patching gaps, and removing fasteners. Timbers are composite glued to create custom-sized structurals for new construction where a wood aesthetic is important. 360/384-2800. The G. R. Plume Co., Ferndale, Wash. **CIRCLE 189**

Engineered-wood system

All of Willamette's engineered wood, such as laminated-veneer lumber, I-joists, and rim board, is designed to work together as an integrated E-Z Frame System. I-joists are included in PRI-400, a new span standard. 541/926-7771. Willamette Industries, Albany, Ore. **CIRCLE 190**



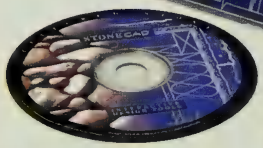
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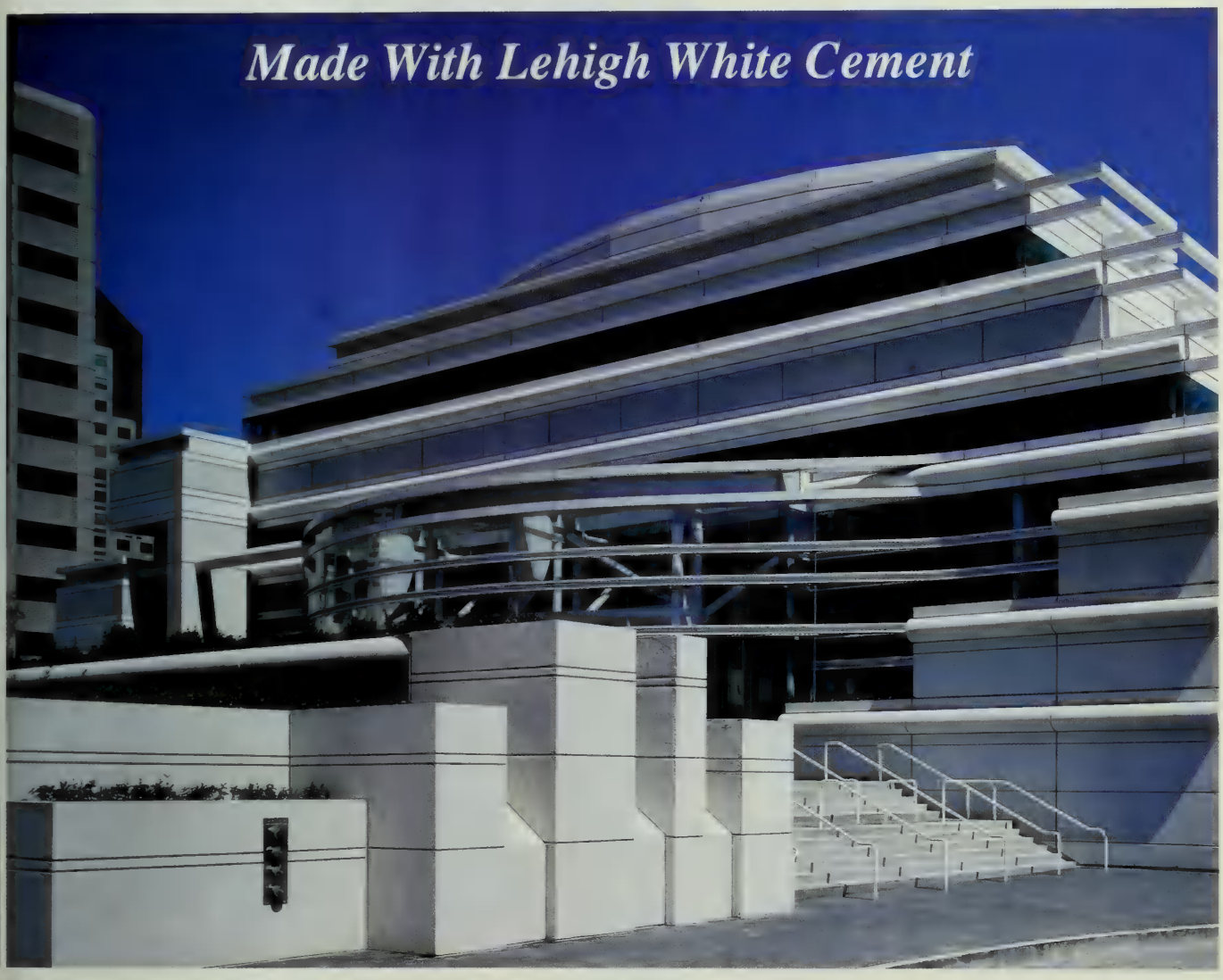


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190

Architectural Precast Concrete



Architect: Gingselar & Associates, San Francisco, CA • Precaster: Dura Art Stone, Hayward, CA • Contractor: Amarosa, Foster City, CA

Architects attending AIA Expo '98 in San Francisco will have the opportunity to experience first hand the results of choosing Lehigh White Cement for the construction of the Moscone Convention Center. The precast concrete construction required the selection of the highest quality materials which were transformed by the craftsmanship of Dura Art Stone to produce the architectural components envisioned by the Architect, Gingselar & Associates.

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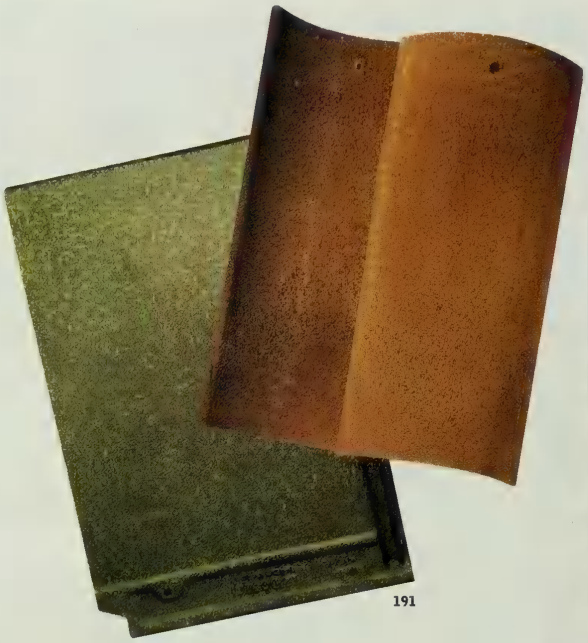
CIRCLE 38 ON INQUIRY CARD

THERMAL & MOISTURE

Cladding • Roofing • Insulation • Siding

Lowering the cost of clay tile

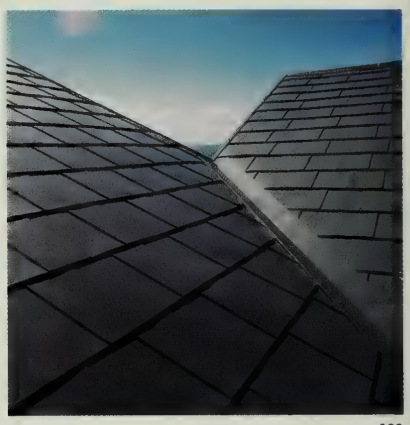
Classic tile such as Interlocking and straight-barrel Mission shapes are now offered in a larger, 18-in. size. While the aesthetic may be somewhat different with the larger size, fewer tiles are needed for the same coverage, lowering both the cost and the weight of a tile roof. For tile specs: www.ludowici.com (Web page); 800/945-8453. Ludowici Roof Tile, New Lexington, Ohio. **CIRCLE 191**



191

Rugged metal-shingle roof

Folded, not embossed, to create an individual shingle effect, Riva roof panels come in Kynar-coated Galvalume and solid-copper versions. Panels interlock to create a wind- and moisture-resistant hem; metal withstands hail and falling ice. 970/949-1078. Vail Metal Systems, Vail, Colo. **CIRCLE 192**



192

Rot-resistant clapboard

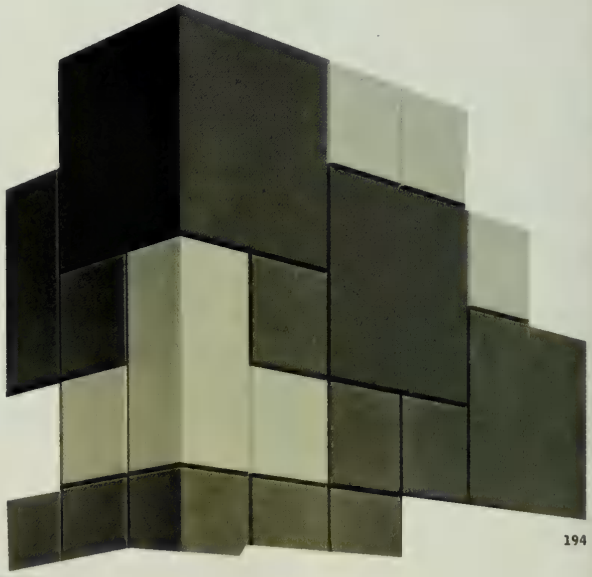
Preprimed SmartLap engineered-wood siding has a moisture-resistant edge coating, and is treated against insects and fungal decay. Planks are made in 16-ft lengths, 6 or 8 in. wide, ready for painting. 800/648-6893. Louisiana-Pacific Corp., Portland, Ore. **CIRCLE 193**



193

Mineral-composite cladding

Carea is a dry joint (rainscreen) stone-look panel priced at $10 per sq ft installed. The autoclaved mineral-based material is nonporous and integrally colored. 888/40-CAREA. Exterior Technologies Group, Zeeland, Mich. **CIRCLE 194**



194

Vinyl-coated Galvalume siding

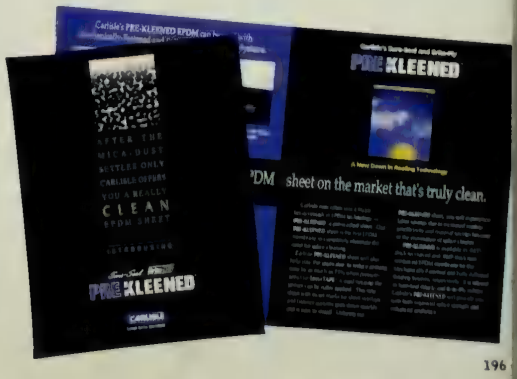
From a maker of metal roofing, Classic Seamless steel siding is formed on-site with a portable roll former to the exact lengths needed; siding sections can go from corner to corner without a seam. Floating attachment clips allow for thermal and settling movement. 800/610-1975. Englert, Inc., Perth Amboy, N.J. **CIRCLE 195**



195

Time-saving roofing

A manufacturing improvement allows Carlisle to provide EPDM roofing that doesn't need talc to prevent sheets from sticking together before installation. The Pre-Kleened membrane does not have to be cleaned prior to splicing, producing labor savings and a better sheet bond. 800/4-SYNTEC. Carlisle SynTec, Inc., Carlisle, Pa. **CIRCLE 196**



196

Custom-curved metal

Expanded fabrication capabilities allow more profiles, such as 3-in.-deep standing seams, and permit curving acoustical decking for use beneath domes and vaults. The service allows the architect to source panels from the manufacturer of choice for contoured roofs, walls, fascias, and decking. 888/998-0311. Curveline, Inc., Ontario, Calif. **CIRCLE 197**

Prefinished SBP

The new Firefinish option produces a structural building panel with a fire-resistant thermal barrier directly applied to the interior OSB surface, ready to paint or texture, eliminating the need for gypsum board. Panels come in sizes up to 8 by 24 ft. 800/255-0176. AFM Corp., Excelsior, Minn. **CIRCLE 198**

Historic slate-look shingle

Grand Manor "shangles" can be an approved, cost-effective alternative when historic construction materials are no longer available or are prohibitively expensive. The restoration of the 1898 East Liberty Market in Pittsburgh used Stonegate Gray to replicate the original natural slate. 800/782-8777. CertainTeed Corp., Valley Forge, Pa. **CIRCLE 199**

High-wind roofing

Snap-Clad aluminum roofing panels, installed 16 in. on center over a solid substrate, have achieved UL-90 ratings, permitting the use of corrosion-resistant, wider aluminum panels in high-wind-code areas. 800/PAC-CLAD. Petersen Aluminum Corp., Elk Grove, Ill. **CIRCLE 200**

Decorative roofing sheet

Mineral Design, a modified-bitumen granule-surface cap sheet, comes in eight designs, including strip slates, camouflage, ovals, and squares, and 13 colors; the brick pattern is shown. 800/535-8597. BiTec, Morrilton, Ark. **CIRCLE 201**

All-in-one roof

The Integrity structural roof combines all components—deck, vapor barrier, insulation, and weatherproofing—into a factory-made, foam-filled panel. Steel is galvanized, painted in any of 20 colors on the exterior, and finished white on the interior surface. Installation savings are said to make the composite panel cost competitive with BUR or single-ply systems. 888/265-4084. Centria Roof Systems, Moon Township, Pa. **CIRCLE 202**



197



198



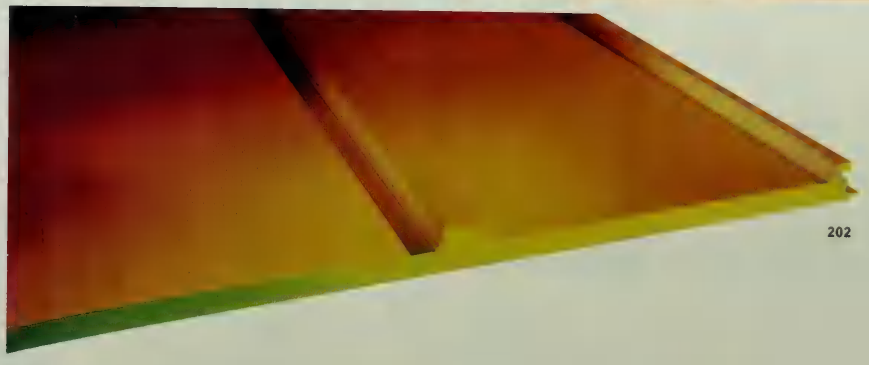
199



200



201



202

continued

THERMAL & MOISTURE

Cladding • Roofing • Insulation • Siding

Labor-saving duct wrap

Fiberglass insulation for HVAC ductwork offers a QuikSeal feature: foil-faced blankets have an extended edge that forms an overlapping, peel-and-stick tab, so sections of wrap can be joined without cutting tape, reducing installation time by 25 percent. CertainTeed Corp., Insulation Group, Valley Forge, Pa. **CIRCLE 203**

Colorfast cladding option

Used in Europe and the U.K. for over 20 years, SurfaceMaster cladding is now marketed in North America. A lightweight thermoset-resin composite impervious to moisture, it comes in sheets up to 5 by 12 ft for facades, fascias, and similar applications. Over 100 patterns and colors are available. 416/661-2351. Forbo Industries, Inc., Concord, Ont. **CIRCLE 204**

Insulating sheathing

The Hatton Batten is a high R-value (12 and 16) foil-faced foam board with a kerf cut into one side to accept the Z furring used to attach drywall to masonry walls. These metal strips can "short circuit" insulation and telegraph shadow lines to the interior finish; the precut board prevents this by creating a continuous layer of insulation over the furring. 800/CELOTEX. Celotex Corp., Tampa. **CIRCLE 205**

Versatile aluminum composite

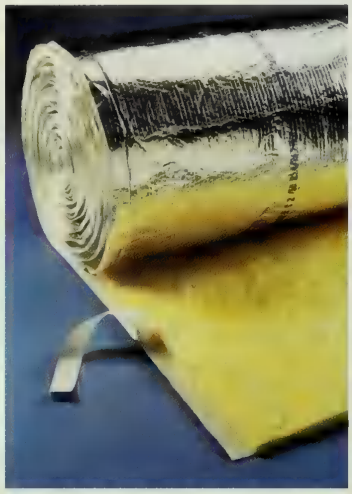
Reynobond has applications in elevator cabs, on walls, and as column covers, as well as cladding. Project-specific coating systems can be ordered in new colors like platinum, blue, and parchment. Available with a fire-rated core, the material has City of Los Angeles approval. 804/281-3939. Reynolds Metals Co., Richmond, Va. **CIRCLE 206**

The roof that moves

Custom glazed roofs and large skylights retract to vent heat and open interiors to sunlight and fresh air; units can function as automatic smoke vents even without electric power. 800/345-7392. Rollamatic Roofs, Inc., San Francisco. **CIRCLE 207**

A lighter shade of black

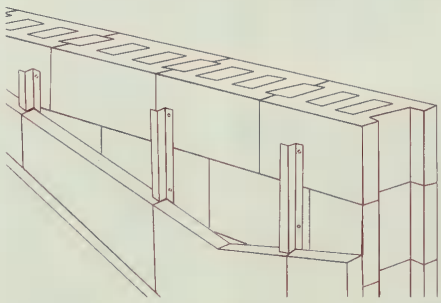
Cool Black, a new thermoplastic polyolefin (TPO) sheet, offers some of the energy savings of heat-reflecting white or light-colored roofs at a lower cost. Under summer sun, it stays about 35 degrees cooler than other black membranes. 800/860-3491, x1079. Stevens Roofing Systems, Holyoke, Mass. **CIRCLE 208**



203



204



205



206



207



208

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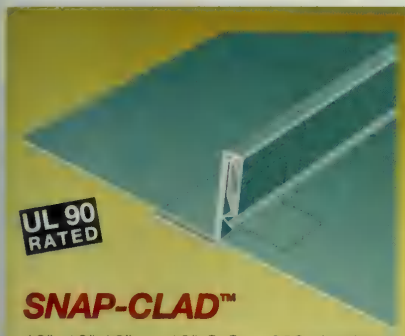
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Petersen Aluminum Corporation's SNAP-CLAD Panels feature architectural panel aesthetics as well as structural panel performance. SNAP-CLAD Panels are corrective leveled to provide superior flatness and feature an optional factory-applied sealant bead for improved weather resistance. In addition, SNAP-CLAD Panels carry a UL 90 rating for wind uplift.

SNAP-CLAD Panels feature a 1-3/4" leg height and a continuous interlock for improved structural performance and wind resistance. A concealed fastener clip system has been designed to allow for thermal expansion/contraction while providing excellent hold-down strength.

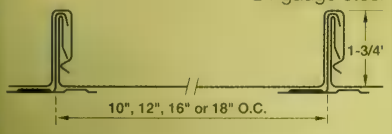
SNAP-CLAD Panels feature our full-strength PAC-CLAD® finish and are available in a variety of on-center dimensions, fabricated from either .032 aluminum, 24 ga. steel or 22 ga. steel. For more information on SNAP-CLAD Panels, please contact Petersen Aluminum Corporation, **1-800-PAC-CLAD or visit our web site @ http://www.pac-clad.com**



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Features

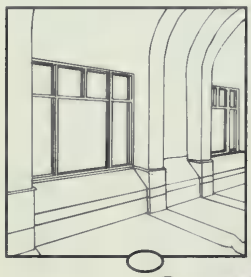
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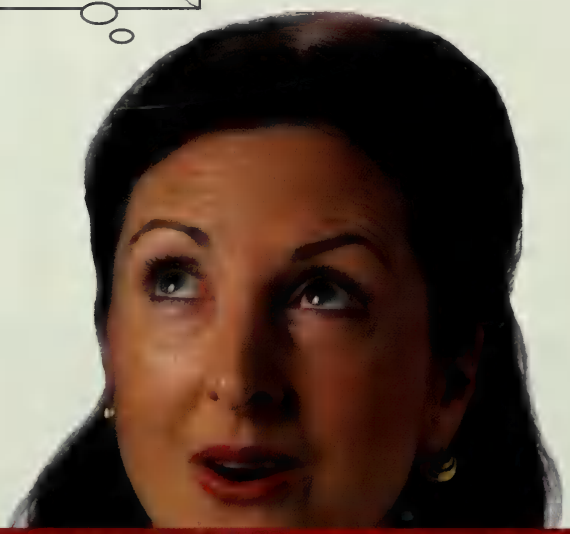


Dental Offices of Manassas
Architect: Robert Loveless
General Contractor: Rector Construction
Roofing Contractor: GRC Roofing Inc.
Color: Forest Green
Profile: 24 ga. SNAP-CLAD

CIRCLE 39 ON INQUIRY CARD

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CIRCLE 41 ON INQUIRY CARD

DOORS & HARDWARE

Doors • Entrance Systems • Door and Cabinet Hardware

Composite-construction slider

New sliding patio doors, an introduction in the Integrity line, are made with a weatherproof Ultrex fiber/resin composite exterior and an interior frame of solid natural pine. An integral screen is top hung to prevent binding. The removable grilles are pine. 800/346-5128. Integrity from Marvin, Warroad, Minn. **CIRCLE 209**

Fire-rated wood door pairs

Double-egress doors do not need any metal edges or astragals to obtain a 90-minute rating in sizes as tall as 8 ft. Approval covers both wood-veneer and laminate doors. Shown with Adams Rite 3900 concealed exit. 800/827-1615. VT Industries, Inc., Holstein, Iowa. **CIRCLE 210**

Circular sliding entrance

An alternative to standard automatic door systems, Tajima's Circle Door provides a breakaway mechanism for emergency egress. The entrance can be ordered in monumental bronze or stainless steel, as shown; doors can have a radius as small as 4 ft. 818/547-4595. Tajima Corp., Glendale, Calif. **CIRCLE 211**

Maximum clearance exit

Von Duprin's new recessed device provides the largest possible opening clearance in cross-corridor fire-door applications: a 44-in. clear width per door. Protruding only 1 5/16-in. from the face, the exit will be UL listed as Fire Exit Hardware for 3-hour door pairs. 317/897-9944. Von Duprin Division, Ingersoll-Rand, Indianapolis, Ind. **CIRCLE 212**

Operable all-glass partition

Modernfold's Cascadia glass wall system got an enthusiastic reception from RECORD's panel. A motorized divider for commercial and retail space, the system is attractive, simple to operate, and inconspicuous when not in use. The laminated-glass panels that make up the wall are stored in a compact, ceiling-mounted housing. When the door is activated, these panels slowly descend in single file, guided by two vertical guide rails that move with them. When deactivated, the panels ascend and stack vertically inside the housing. The panels weigh 7 pounds per sq ft and are described as very sturdy. Once the "solid" glass wall is formed, it can't be levered up by force. 800/869-9685. Modernfold, Inc., New Castle, Ind. **CIRCLE 213**



209



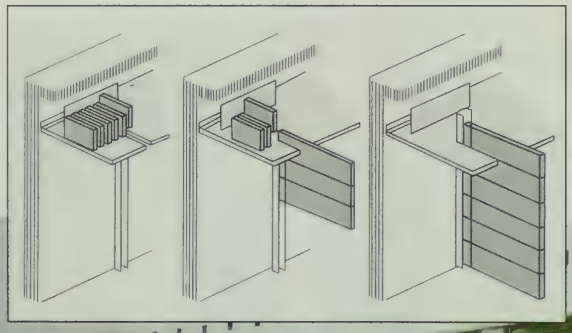
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211



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continued

DOORS & HARDWARE

Doors • Entrance Systems • Door and Cabinet Hardware

Positive-pressure gasketing

Allseal Series 9000 products, an integrated series of perimeter gaskets, permit door assemblies to pass the new positive-pressure fire test, UL-10C. The line includes a silicone compound that resists high heat and weather exposure and a soft-puff intumescent material; all pass NFPA 105 smoke-seal requirements. 800/647-7874. National Guard Products, Inc., Memphis, Tenn. **CIRCLE 214**

Fire-rated glazed doors

Maiman offers a 20-minute full-light door, as well as 90-minute doors with two and three vision lights. An expanded product line includes bullet-resistant stile-and-rail doors and 16-ft-high wood windows. 800/641-4320. The Maiman Company, Springfield, Mo. **CIRCLE 215**

Stainless-steel spring hinge

Hinges made of 304-grade stainless can withstand corrosive coastal and industrial environments. The 2060R three-knuckle hinge has particular application in corridors, entrances, and stairways as an economical alternative to overhead closers on apartment and hotel doors. 800/445-5723. Stanley Hardware, New Britain, Conn. **CIRCLE 216**

Bar-stock lever handle

A Grade 1 trim with no exposed fasteners, 93 levers are bent and machined from 3/4-in.-dia. solid brass, bronze, or stainless-steel bars, giving them a strength and weight close to those of forged levers at a much lower cost. 800/847-1864. Schlage Commercial Lock, San Francisco. **CIRCLE 217**

Retrofit doors to meet code

FS820 Kerf and FS 850 Dado systems, described as practical and economical upgrades, allow existing 20-minute wood doors to pass positive-pressure standards for 20-minute smoke and draft-control doors, per UBC 7-2 1997, using standard hardware. 800/635-5335. Zero International, Bronx, N.Y. **CIRCLE 218**

Sliding/stacking door hardware

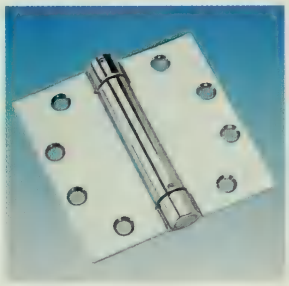
HAWA Variotec door hardware uses aluminum track with curved segments said to assure smooth, quiet running of the nylon rollers. For glass, wood, and metal doors, the track system comes in modules that allow on-site size adjustment. 888/437-7477. Häfele Architectural Products, Arlington Heights, Ill. **CIRCLE 219**



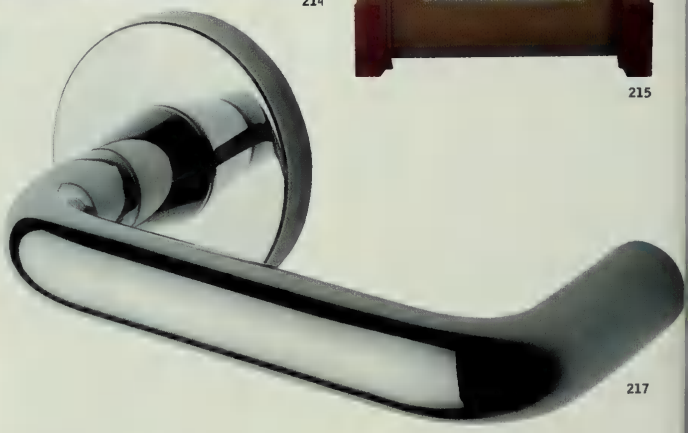
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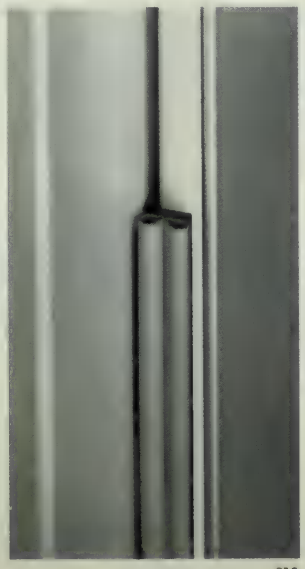
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216



217



218



219

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CIRCLE 44 ON INQUIRY CARD

WINDOWS & GLAZING

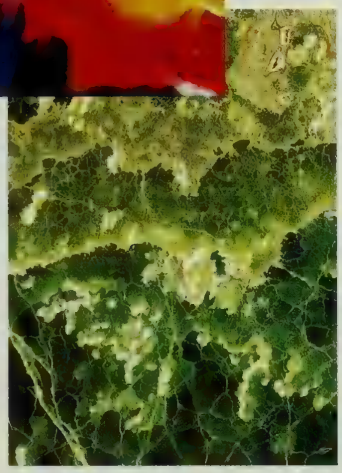
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GlassFresco can replicate almost any possible concept. Continuous-tone color imaging, achieved by a new dye-transfer printing process, means designers can work with photographs, digital data files, or original artwork to create graphics in opaque, transparent, or translucent glass laminations. Pictured are two of 18 stock patterns. GlassFresco can be used as spandrels, cladding, partitions, and skylights. 800/275-7272. Cesar Color, Inc., Burlingame, Calif. **CIRCLE 220**



220



Windows-to-order

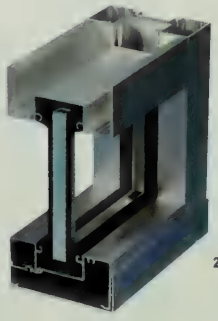
Formerly made in Western Red cedar only, custom windows and doors are now available in any wood the architect requires, as well as any size, shape, or glazing option specified. 800/240-4365. Cedar Windows & Doors by Bergerson, Hammond, Ore. **CIRCLE 221**



221

Lower-cost storefront

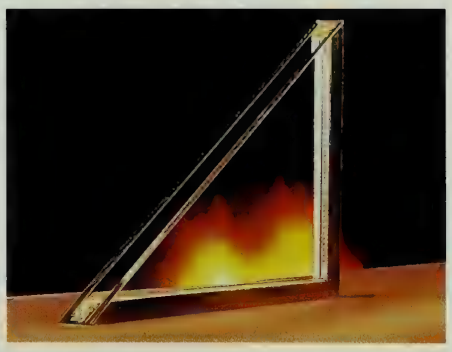
Series 14000 flush-glazed framing for low-rise applications is said to reduce costs by cutting the number of pieces required for installing a typical wall; the design is compatible with this maker's standard entrances. Text and detail information at www.tubeliteinc.com (Web page). 616/832-2211. Tubelite, Inc., Reed City, Mich. **CIRCLE 222**



222

Fire-rated IGU

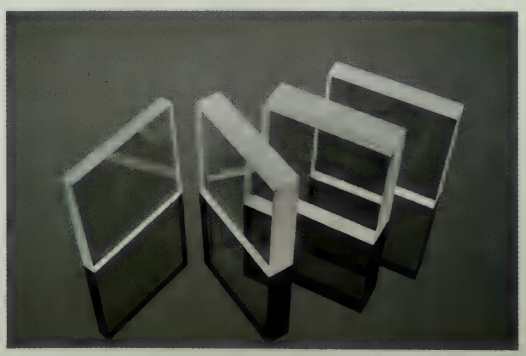
FireLite Plus, an impact-rated version of glass-ceramic FireLite, passes CPSC 16C FR1201 (400 fpi impact) and hose-stream tests. Can be specified in insulating units; fits in standard frames. Available in large sizes. 800/426-0279. Technical Glass Products, Kirkland, Wash. **CIRCLE 223**



223

High-security glazing

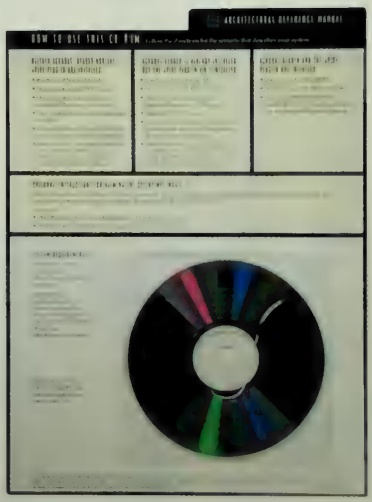
Four new makeups are offered to meet UL bullet-resistance levels for high-powered rifles, now required for many government facilities, courthouses, and corporations. The line includes Vira-Guard LAC-1250, a lighter-weight, all-polycarbonate laminate. 800/533-2080. Viracon, Owatonna, Minn. **CIRCLE 224**



224

Curtain wall CD-ROM

Both volumes of EFCO's architectural manual, covering a full line of curtain wall, storefronts, entrances, and windows, are now offered as a free CD-ROM, including a QuickTime segment with the manufacturer's capabilities video. 800/221-4169. EFCO Corp., Monett, Mo. **CIRCLE 225**



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continued

WINDOWS & GLAZING

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Curtain Wall • Glazing Materials

Tread the light fantastic

Austrian glass manufacturer Eckelt makes the Litefloor with a customizable nonslip coating said to supply a "superior" coefficient of friction. Stair treads and floor sections can be supported on four sides or span between two points. 914/683-1390. Euroglass Corp., White Plains, N.Y. **CIRCLE 226**

Solar-control retrofit

Professionally applied to the interior side of windows and storefronts, Solis neither darkens nor colors the appearance of the glass. By the makers of Heat Mirror spectrally selective film, the Solis product blocks heat, UV, and glare while transmitting a high percentage of visible light. It can be cleaned with a squeegee, and will hold glass together if broken. 800/786-2468. Solis Div., Southwall Technologies, Palo Alto, Calif. **CIRCLE. 227**

Hurricane-resistant framing

The ProTek YHC300 curtain wall has been listed as compliant with South Florida's impact- and pressure-cycle tests, and is certified to 20 psf by ASTM's E331 water-penetration test. 800/955-9551. YKK AP, Atlanta. **CIRCLE 228**

Light-diffusing panel

Kalwall's fiberglass-faced translucent panel can now be specified as a thermally broken curtain wall that prevents condensation. Architects Bechtel Frank Erickson chose a crystal exterior face and a white interior for large glazed walls that flood the rebuilt Malden Mills factory with natural light. 800/258-9777. Kalwall Corp., Manchester, N.H. **CIRCLE 229**

Architectural art glass

Nature-inspired leaf and grass patterns are among the new FosilGlas textured glass designs. Similar in appearance to kiln-formed glass, FosilGlas is less expensive and is made in a broader range of sizes. A proprietary sealant makes large expanses of etched glass practical, even in high-traffic applications. 888/278-4660. Skyline Design, Chicago. **CIRCLE 230**

Zero sightline venting unit

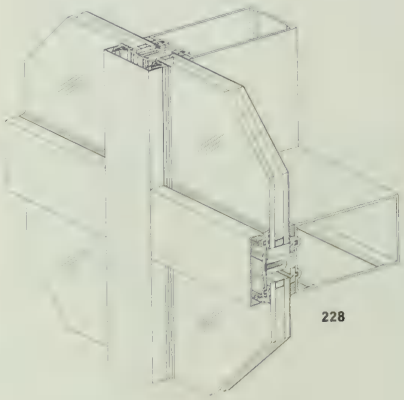
The zsWindow architectural ventilator lets fresh air into a storefront system without the obtrusive paning of a conventional insert. Said to be easy to install, the unit comes in sizes up to 60 by 36 in. 972/551-6100. Vistawall Architectural Products, Terrell, Tex. **CIRCLE 231**



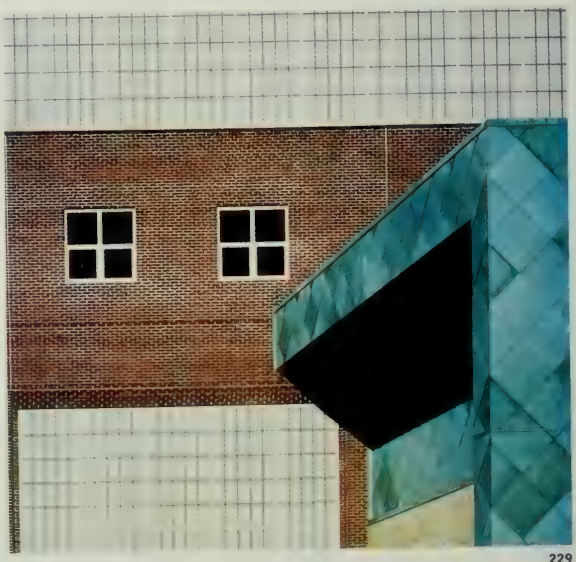
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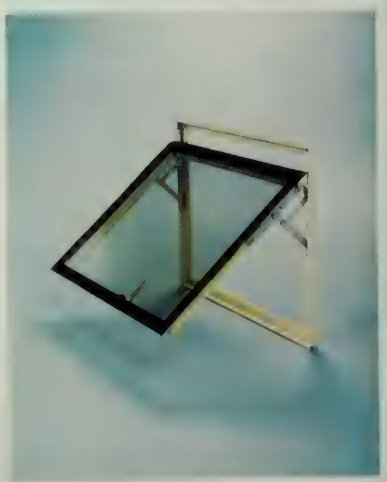
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231

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Ordinary glass

AMIRAN anti-reflective glass

(The Car Is Nice Too.)

AMIRAN® anti-reflective architectural glass — so clear, it's like it's not even there. No offense to the German automotive industry, but the real story here is the glass panel shown on the right. Created in Germany by Schott's leading team of glass engineers, Amiran anti-reflective glass reduces architectural window glare from 8% to as little as 1%. But the benefits go beyond just clarity. Since more light passes through the glass, Amiran also helps reduce lighting fixture and energy costs. It even cuts cooling costs because of less heat build-up. Amiran is ideal for storefronts, restaurants, zoos, museums — any place where high visibility is a must. And it's readily available for delivery throughout the U.S. It's no wonder architects and retailers are so revved up. For more information, glass samples, or to see if you qualify for our special subsidized installation offer, contact Schott Corporation, 3 Odell Plaza, Yonkers, NY 10701, or call (914) 378-3839. And visit Schott's website at www.schott-group.com.

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Unobstructed casements

French-style casements in a new design open wide, with no central mullion to block the view. Both sides operate on one crank handle and lock with a single lever. Wood frames are available in maple, oak, mahogany, cherry, or pine. 800/477-6808. Weather Shield Windows & Doors, Medford, Wis. CIRCLE 232

Hurricane-resistant glazing

Tested to the impact and cyclic wind-pressure standards of the South Florida Building Code, new P380 and L916 glazings protect structures and building contents from storm damage as well as from smash-and-grab theft attempts. 800/323-8776. Globe Amerada Glass Co., Elk Grove Village, Ill. CIRCLE 233

Curved translucent panels

TransCurve panels are built on an aluminum grid, with an exterior FRP face offered in translucent colors. Panels can be walls or skylights; a daylighting product manual gives architectural details and technical data. 888/SKYCOST. Major Industries, Inc., Wausau, Wis. CIRCLE 234

Dry-glazed thermal storefront

EnCore, a new mullion design, eliminates metal-to-metal contact between frame halves, improving the glazing system's energy efficiency and water-infiltration performance while providing positive internal drainage. Sight lines are narrow; fasteners are concealed. 770/449-5555. Kawneer Co., Inc., Norcross, Ga. CIRCLE 235

Anti-reflective glass

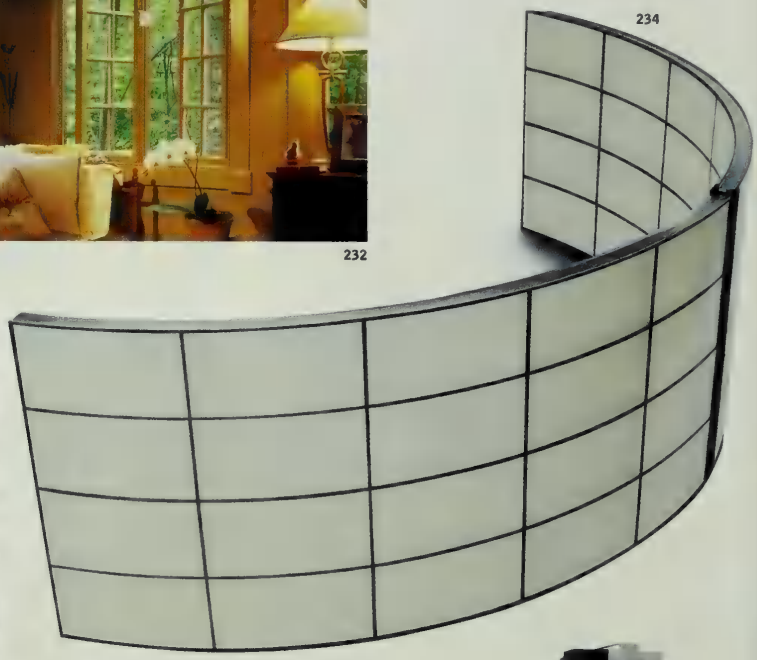
Amiran, at left in photo, was installed in an Atlanta Braves skybox to prevent glare from stadium lights bothering the ballplayers below. The antireflective glass is now available in a tempered safety version, which meets wind-load restrictions and is suitable for doors and curtain walls. 914/378-3839. Schott Corporation, Yonkers, N.Y. CIRCLE 236

New in 1925; new again

Pella's Rolscreen option has been placed inside a new, finished-wood housing at the top of the casement. The black fiberglass screen pulls down like a window shade, locking into the sill. When the screen is not in use, the window allows a clear view and 40 percent more light than a fixed insect screen admits. The screen-holding channel is prefinished. 800/54-PELLA. Pella Corp., Pella, Iowa. CIRCLE 237



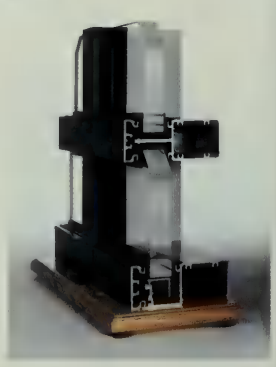
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237



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An architect's ideal floor would come in a broad color palette, and would offer easy-to-achieve custom-look designs by mixing lengths, widths, colors and species. The ideal wood floor would be readily available, would look like a custom floor, and would be priced more affordably than custom floors. And it would come with the manufacturer's expert sales and support system, for smooth and timely completion of the project.

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FINISHES

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Treaded quarry tile

To be installed in demanding indoor and outdoor locations such as ramps and kitchen floors, Metro-tread tile has ridges across the traffic surface to provide long-term slip resistance. The units are oriented to form either checkerboard or linear patterns, depending on the direction of traffic. 800/325-3945. Metropolitan Ceramics, Canton, Ohio. **CIRCLE 238**

Aluminum sound absorption

Almute sintered-aluminum panels now come in Intaglio, Crosshatch, and Weave finish options. The particulate-metal material is 40 percent air space by volume, attenuating sound in the gap between panel and wall. 800/433-7337. Peer, Inc., Wheeling, Ill. **CIRCLE 239**

Modular sports surface

A solid-top version of Matéflex interlocking polypropylene flooring is said to provide "all the benefits of wood flooring without the headaches." For indoor roller hockey, basketball, and other sports, the shock-absorbent surface goes directly on a subfloor or concrete slab. 800/926-3539. Matéflex, Utica, N.Y. **CIRCLE 240**

Carpet-on-call

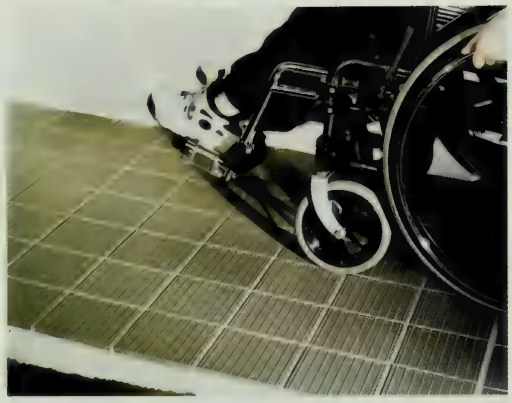
Made of Monsanto solution-dyed yarns, the PS Series broadloom fits the styling, maintenance, and budget requirements of commercial, healthcare, and education markets. Also new: Easy Street, a collection of 63 coordinating carpets in stock for immediate shipment. No minimum yardage. 800/221-3684. Prince Street, Cartersville, Ga. **CIRCLE 241**

Linoleum sheet

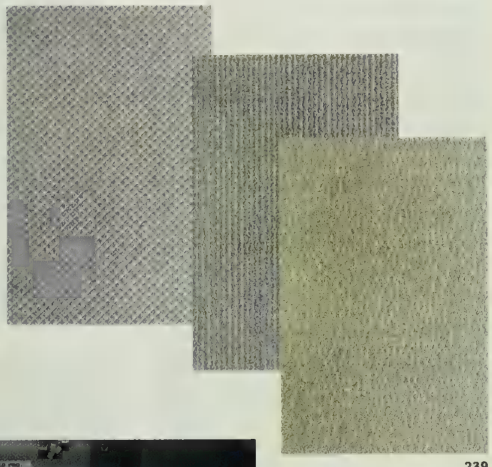
Marmoleum, made of linseed oil, rosins, and cork or wood fibers, is available in vivid new colors. The Real line offers 36 colors; Fresco comes in 12; and Walton has 12 solid colors. Described as environmentally friendly, the linoleum can be installed without solvent-based adhesives. 800/342-0604. Forbo Industries, Hazleton, Pa. **CIRCLE 242**

Painted grid for open ceilings

Prelude XL 360° offers painted suspension systems in over 180 colors, for open plenums that need to coordinate with other interior finishes. Heavy enough to carry signage and fixtures, the grid is made entirely of hot-dipped galvanized steel. 800/448-1405. Armstrong World Industries, Inc., Lancaster, Pa. **CIRCLE 243**



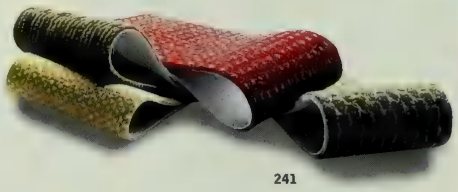
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SPECIALTIES & EQUIPMENT

Conference • Kitchen Cabinets • Access Flooring
Louvers and Vents • Signage • Exhibit and Display

Video-display wall

Dynamic, large-scale electronic display walls are fully automated for continuous, unattended operation. One application is this 17-ft music-video wall at a big Tower Record store; others include museum, corporate, and trade-show visuals. The software allows random, nonrepetitive programming of news, promotions, or PC-generated graphics. 201/366-5550. ImTech, Denville, N.J. **CIRCLE 245**



245

Ultra-low raised floor

One of several under-floor wire-distribution systems from Interface, the Intercell supports noise-dampened steel flooring plates in only 3 in. of space. Pedestals come in steel or plastic, and can be adjusted to fit odd shapes and angles. 616/243-2211. Interface Architectural Resources, Grand Rapids, Mich. **CIRCLE 246**



246

Slim projection screen

The Silhouette screen is unobtrusive whether it is up or down or mounted on ceiling or wall. The bottom dowel disappears into the case when the screen is raised; all brackets and wiring are concealed. Electric or manual operation may be specified. 765/987-7999. Draper, Spiceland, Ind. **CIRCLE 247**



247

Architectural signage

A new style for ADA-compliant interiors, Pacific signs have a contoured silhouette for a contemporary appearance. Signs can be wall-hung, suspended, or free-standing; message panels are interchangeable. 800/ASI-SPEC. ASI Sign Systems, Inc. Dallas. **CIRCLE 248**



248

Big and sleek

Minimalist English architect John Pawson's cabinetry for Belgian manufacturer Obumex has a "rigorous geometry" of smooth surfaces, concealed hinges and fittings, and large volumes that interlock along a wall or as an island. Only the water spout sticks up. Countertops may be lavastone, walnut, or marble. 212/758-4046. B&B Italia, USA, New York City. **CIRCLE 249**



249

Interactive directory kiosk

A sleek, freestanding display for continuous, 24-hour use, the touch-screen Link Plynth can be used as a corporate directory, an office hoteling guide, or a wayfinding tool. 905/625-1111. King Products, Inc., Etobicoke, Ont. **CIRCLE 250**



250

Demountable partition
An updated version of a full-height system popular 50 years ago, the 238 wall lets the designer switch between two post widths in a single section. Skidmore, Owings & Merrill specified clear, patterned, and crinkle glass within this 238 installation. 212/334-3190. Acme Architectural Walls, New York City. **CIRCLE 251**

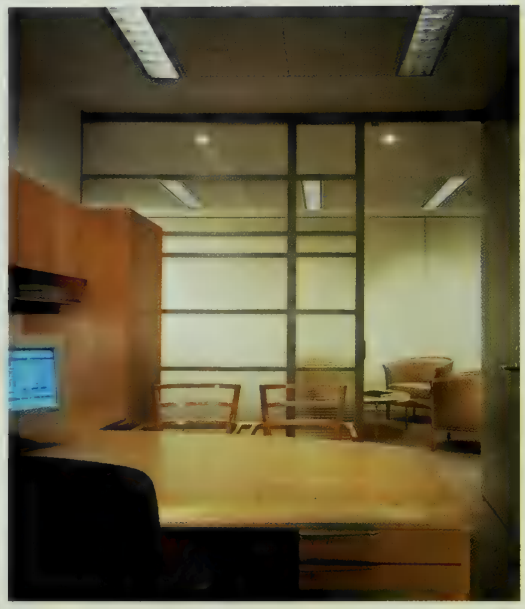
No-sneak-peek compartment
A multicam stainless-steel toilet-compartment hinge provides privacy, emergency access, and automatic closure: out-swing doors return to a closed position; in-swing versions stay closed or partially open. It is made of 16-gauge steel for heavy use. 516/333- 2600. Metpar Corp., Westbury, N.Y. **CIRCLE 252**

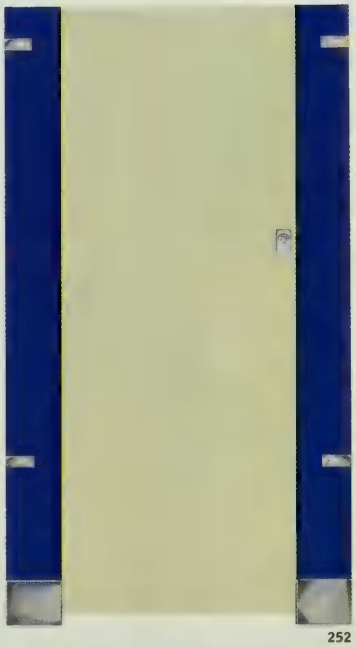
Protective outlets
Receptacles incorporate continuous surge suppression in a standard-size duplex outlet, providing point-of-use protection for sensitive electronic equipment. Indicator lights display the active status of the device. Color choices: orange (isolated ground circuits), blue, ivory, and gray. 800/621-0049. The Wiremold Co., Bristol, Conn. **CIRCLE 253**

Storm-resistance to order
A new concept, Location Smart ventilation louvers work from a climate database that calculates the optimal configuration for a specific building in a particular geographic location. The frame is designed to channel anticipated rainfall away from the louver face; exteriors can be ordered in a number of ornamental patterns. 888/640-5566. C/S Group, Lebanon, N.J. **CIRCLE 254**

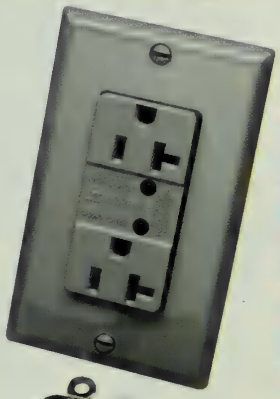
Multimedia conference system
Sleek, fold-out controls fit into Media Walls that meet a client's individual conference/communication needs with combinations of rear- and front-projection screens, monitors, flip charts, and writing boards. Bifold doors conceal all equipment. 630/876-1830. Windel International/Weyel, West Chicago, Ill. **CIRCLE 255**

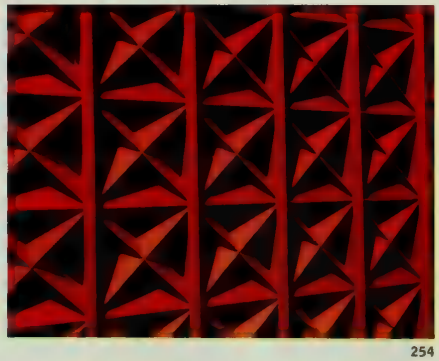
Retrofit access floor
Engineered as a cable-management system that can go into an existing facility, the current version of the Cablefloor features minimal, 2 1/2-in.-high, 24-in.-sq cementitious floor panels and a cut-to-fit support grid. 800/999-3567. Flexspace, Inc., Seattle, Wash. **CIRCLE 256**

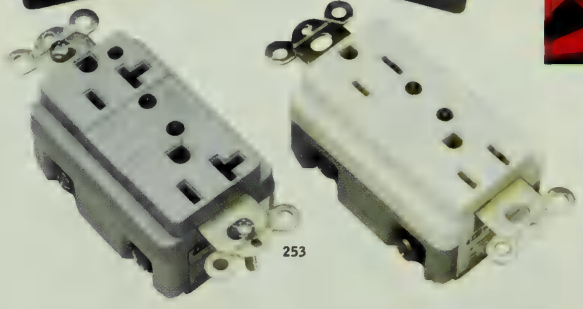

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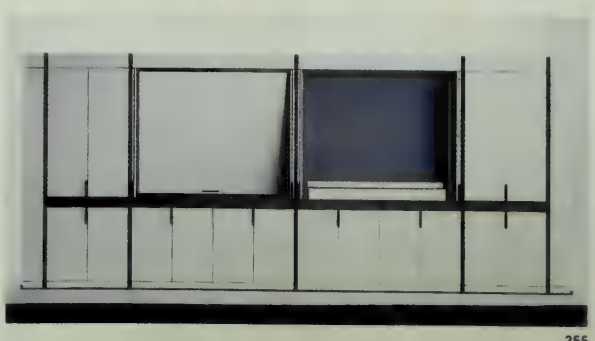

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Jack Culley
Worries about construction delays (50% chance of rain), falling debris and what effect instability in Asia may have on his Pacific Rim Mutual Fund.
We're more to Jack than just Architectural Record and F.W. Dodge. We've over 100 brands and companies, ranging from publishing to financial services to media. And with Standard & Poor's and Business Week, we help him, and millions of people like him, build their portfolios.
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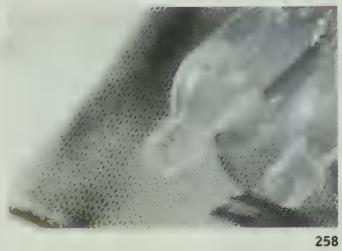
The Riviera aluminum window blind may be specified with a new LightMaster feature, where each overlapping slat completely covers the cord hole of the slat below it. This greatly improves the room-darkening performance of the shade. 800/826-8021. Levolor Home Fashions, High Point, N.C. **CIRCLE 257**



257

Sustainable panel fabric

Aptly named *Play it Again Sam*, DesignTex's new textured basket-weave is made of Fortrel Ecospun, a yarn produced completely from recycled plastic containers such as PET soda bottles. The material is UL listed, comes in nine "Armani-like" soft, neutral colors, and is priced at $18 per yard. 800/221-1540. DesignTex, Inc., New York City. **CIRCLE 258**



258

Comfort at the airport

Fully upholstered for ergonomically sound seating during long stopovers, the GateOne line is built on a steel-beam frame to withstand high-traffic, 24-hour-a-day use. The company describes its design as having "the aesthetic of a Concorde for the price of a Kiwi." 920/468-2162. KI, Green Bay, Wis. **CIRCLE 259**



259

Inspired by a master

Antonio Citterio named his new seating Charles for its inspiration, Charles Eames. Interchangeable, single-backed sections have identical slants to arms and backs, so individual units fit together "seamlessly" to become a sofa, a daybed, an ottoman, or a chaise longue. Loose pillows match the units. B&B Italia, New York City. **CIRCLE 260**



260

Affordable ergonomic seating

Introduced by Turnstone at a mid-market price, Springboard office, task, and manager chairs have movable arms and high, contoured backs for good lumbar support. The adjustment mechanism is intuitive for ease of use. 800/784-0358. Steelcase, Grand Rapids, Mich. **CIRCLE 261**



261

Built for change

The Platform office supplies a stackable framework that can be easily adapted to organizational change, whether in computer technology and wire management or in reconfigured personnel teams. Storage can be readily customized and makes good use of scarce floor space. 905/836-7676, x313. Office Specialty, Holland Landing, Ont. **CIRCLE 262**



262

FURNISHINGS

Window Treatments • Sun Control • Reception Furniture
Office Systems • Fabrics • Seating

Open-ended office solution

Designed and first marketed in France, the Nomade office by Jean-Louis Berthet and Denis Vasset meets new organization modes with a changeable yet cost-effective product. Colorful work surfaces are mobile, height-adjustable, and reversible. 800/344-2600. Haworth, Inc., Holland, Mich. **CIRCLE 263**

Solution-dyed upholstery

Carnegie's first collection of solution-dyed nylon fabrics, Balancing Act is highly abrasion-resistant and easy to maintain with healthcare-caliber cleansers. Designed by Laura Guido-Clark and Beverly Thome. 800/727-6770. Carnegie, New York City. **CIRCLE 264**

Cost-effective casements

Made of a fire-retardant Trevira said to have a "wool-like" hand, the geometric-pattern Corinthian/3 is washable, durable, and priced from $12.70/yard. 800/645-3943. Maharam, New York City. **CIRCLE 265**

Lightly scaled seating

Bikini, by Studio DDL, comes as an armchair, a stool, and a sidechair—all stackable. The seat and back are flexible thermoplastic; all color options are shown. 401/724-4470. Zero U.S. Corp., Lincoln, R.I. **CIRCLE 266**

For seating and panels

Original-design contract upholsteries and panel fabrics by Jane Eschbach include cotton chenille Briquete, matte striped Classic Lines, and nubby-textured Wavelengths. All pass the most stringent abrasion tests. 800/444-8812. Geiger Brickel, Atlanta. **CIRCLE 267**

Thinner shadecloth

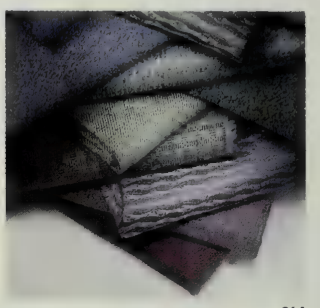
EuroVeil is a fire-retardant woven vinyl with good see-through characteristics. Color affects in-use performance: darker colors reduce glare better; lighter colors reflect more heat and keep light levels higher. Easy to maintain, the fabric is suitable for healthcare and public spaces. 800/899-8081. MechoShade Systems, Long Island City, N.Y. **CIRCLE 268**

Cheaper power

Described as affordable, Duette's Power Rise option needs no cords or wiring. A battery-operated motor in the headrail responds to up-or-down commands from a hand-held remote. 800/327-8953. Hunter Douglas Window Fashions, Broomfield, Colo. **CIRCLE 269**



263



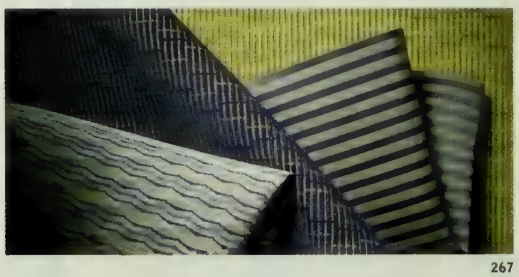
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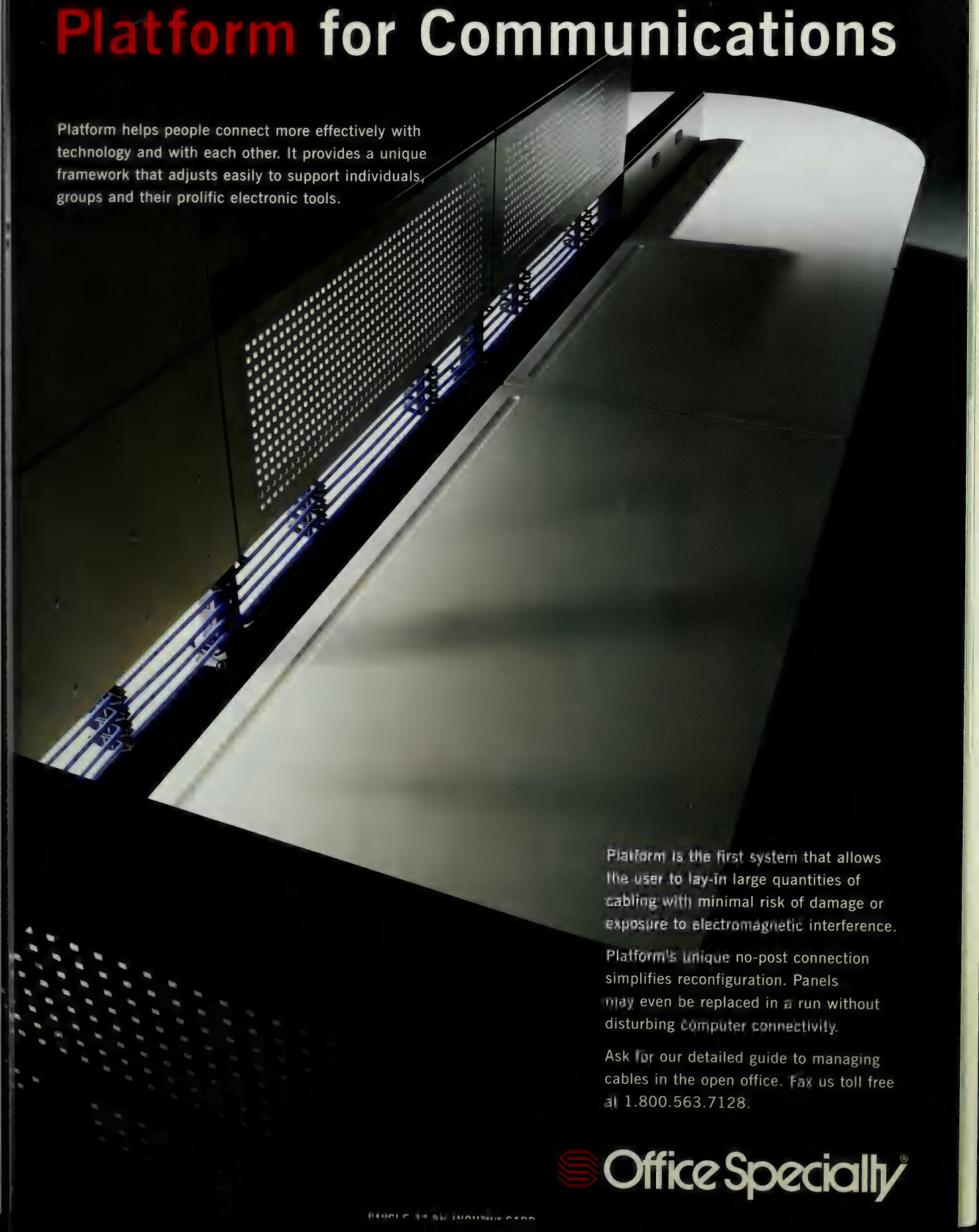


269



268

Platform for Communications



Platform helps people connect more effectively with technology and with each other. It provides a unique framework that adjusts easily to support individuals, groups and their prolific electronic tools.

Platform is the first system that allows the user to lay-in large quantities of cabling with minimal risk of damage or exposure to electromagnetic interference.

Platform's unique no-post connection simplifies reconfiguration. Panels may even be replaced in a run without disturbing computer connectivity.

Ask for our detailed guide to managing cables in the open office. Fax us toll free at 1.800.563.7128.

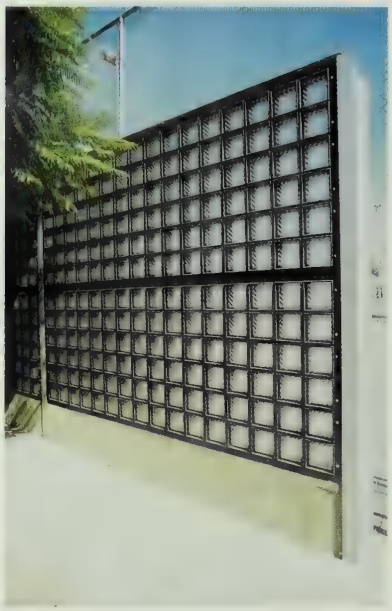
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SPECIAL CONSTRUCTION & CONVEYANCE

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See-through noise barrier

Designed to reduce both transmitted and reflected sound from highways, airports, industrial sites, and similar sources, the Quilite barrier is a factory-made panel of polycarbonate blocks held in noise-trapping bezels, mounted in a steel frame. Audible incident noise through the panels is cut by over 80 percent. A corrugated surface eliminates reflected glare; lightweight modules can be made up to 20 ft high. 310/641-7701. Quilite International, Los Angeles. **CIRCLE 270**



270

Escalator for outdoors

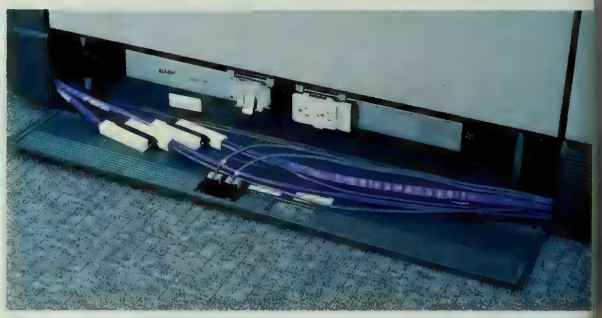
The 9300 escalator is rugged enough for the heaviest traffic of public-transit facilities. Inclined balustrades with stainless-steel infill resist vandalism; all mechanical components are designed for a high degree of reliability, regardless of environmental conditions. Available in two-, three-, and four-flat-step configurations to meet safety and design requirements. 973/397-6500. Schindler Elevator Corp., Morristown, N.J. **CIRCLE 271**



27

Traffic-flow enhancement

A new control system uses artificial-intelligence algorithms to respond to changes in building traffic. Controls are able to reduce both passenger wait time and travel time, optimizing elevator performance. The equipment can be retrofit onto other elevators. 800/956-KONE. Montgomery KONE, Moline, Ill. **CIRCLE 272**



27

Zone cabling strategy

Wire management in open-office facilities is made easier by a common approach for all cabling moves that includes devices like the Pypline, a Category 5 UTP cabling system specifically engineered for modular furniture applications. 800/835-7240. AMP, Inc., Harrisburg, Pa. **CIRCLE 273**



272

Double-deck exhibit system

Modular Dexz maximizes costly space while minimizing exhibit costs. Exhibitgroup/Giltspur, Edison, N.J. **CIRCLE 274**



2

Horizontal elevator arrives

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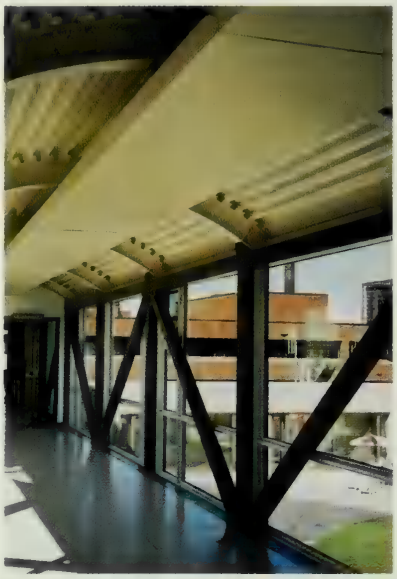
CIRCLE 46 ON INQUIRY CARD

MECHANICAL

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276

Stone-look coolers

SoftSides wall-mount fountains are now available in a composite polymer in colors like emerald green (shown), black, and gray granite. Curved edges prevent injuries; most models are ADA-compliant. 630/574-8484. Elkay Manufacturing Co., Oak Brook, Ill. **CIRCLE 277**



277

Off-peak air conditioning

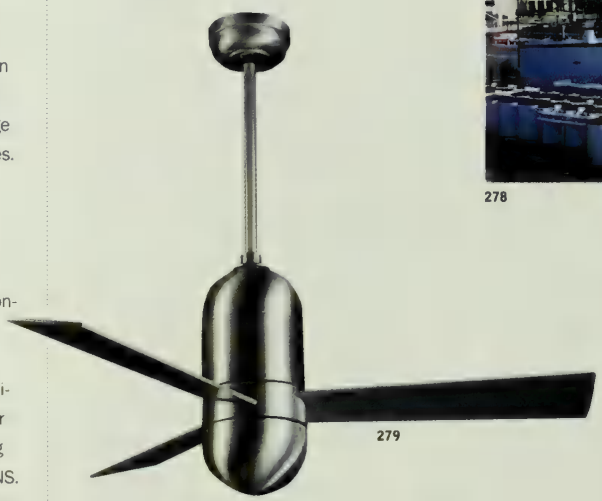
Ice Bank stored cooling can shift or level electrical loads, reducing both total power draw and premium-demand charges. The equipment makes ice during off-peak times, and uses it to lower a building's air-conditioning load during the daytime. Properly sized systems can mean conditioning larger spaces using existing chillers, or reducing the tonnage and expense required for new structures. 201/569-0420. Calmac Mfg. Corp., Englewood, N.J. **CIRCLE 278**



278

21st-century ceiling fan

A Ron Rezek design, the Cirrus has no bulge for the motor: all equipment is concealed by the fan's cylindrical housing. Blades can be molded acrylic with a bend at the ends, or square-edged laminate. The fan comes without a stem, for low ceilings, or with the "short" housing shown, for higher spaces. 888/588FANS. Modern Fan Co., Ashland, Ore. **CIRCLE 279**



279

Water-saving toilets

The "next generation" of pressure-assist flushing systems are quieter in use, better able to resist aggressive water, and smaller, for a lower tank profile. Units permit a larger trapway, preventing stoppages. 800/875-9116. Sloan Flushmate Division, Franklin Park, Ill. **CIRCLE 280**



280

Rugged and high-tech

A new line for Acorn, Meridian Curvalinear stainless-steel washbasins come in single, double, triple (pictured), and quad configurations. All meet ADA guidelines. 800/488-8999. Acorn Engineering, City of Industry, Calif. **CIRCLE 281**



281

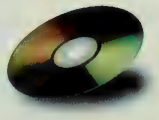
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CIRCLE 53 ON INQUIRY CARD

LIGHTING

Ambient Lighting • Task Lights • Exterior Luminaires • Sources • Accent Lighting

Indirect sconce

SPI says its Phaces fixture is the first ADA-compliant sconce to take both metal-halide and compact-fluorescent lamps, providing the architect with a lumen package to implement a range of decorative and ambient lighting effects. 414/242-1420. SPI Lighting, Inc., Mequon, Wis. **CIRCLE 282**

Blacklight spot

The BL38 track fixture is designed to produce high-intensity, focused ultraviolet-A light to illuminate materials that fluoresce in applications such as retail display, entertainment lighting, and exhibits. 800/999-9574. Lighting Services, Inc., Stony Point, N.Y. **CIRCLE 283**

UV-blocking light

Venture's new metal-halide lamp is made with UVGuard, intended to shield ultraviolet light enough to prevent the yellowing of plastic fixture lenses and extend the high-output life of the lamp itself. 440/248-3510. Venture Lighting International, Solon, Ohio. **CIRCLE 284**

Wireless home lighting control

The Radio RA radio-frequency device reduces the cost of a whole-home lighting-control system. Up to 12 controls can operate 32 dimmers and switches each. No hard wiring is needed. 800/523-9466. Lutron Electronics Co., Coopersburg, Pa. **CIRCLE 285**

"Seamless" wallwashers

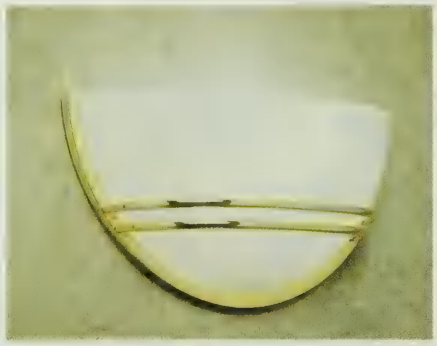
Neo-Ray says its fluorescent PentaFlex system (79PF is shown) appears pleasantly luminous and distributes light uniformly without socket shadows. 718/456-7400. Neo-Ray Lighting Products, Brooklyn, N.Y. **CIRCLE 286**

Linear lightstrip

Three horizontal rows only 6 in. wide outline the top of a 42-story-high bank with light that is visible 5 miles away. The illumination comes from a light-emitting phosphor layered in a flexible strip that takes very little current and can be made as long as 1,500 ft. 800/356-3030. EL Lighting, Chatsworth, Calif. **CIRCLE 287**

For wall or ceiling

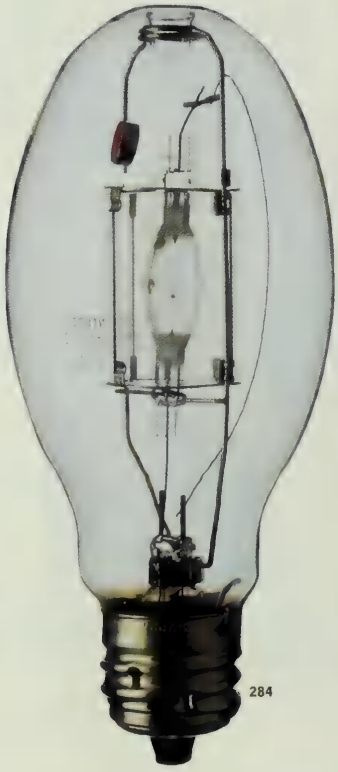
A small-scale exterior light comes in a brushed-stainless trim, cast-aluminum housing, and various wire-guard options. UL-listed for wet locations. 805/684-0533. BEGA, Carpinteria, Calif. **CIRCLE 288**



282



283



284



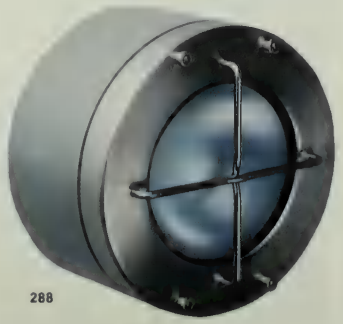
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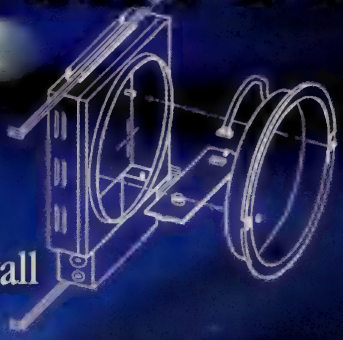


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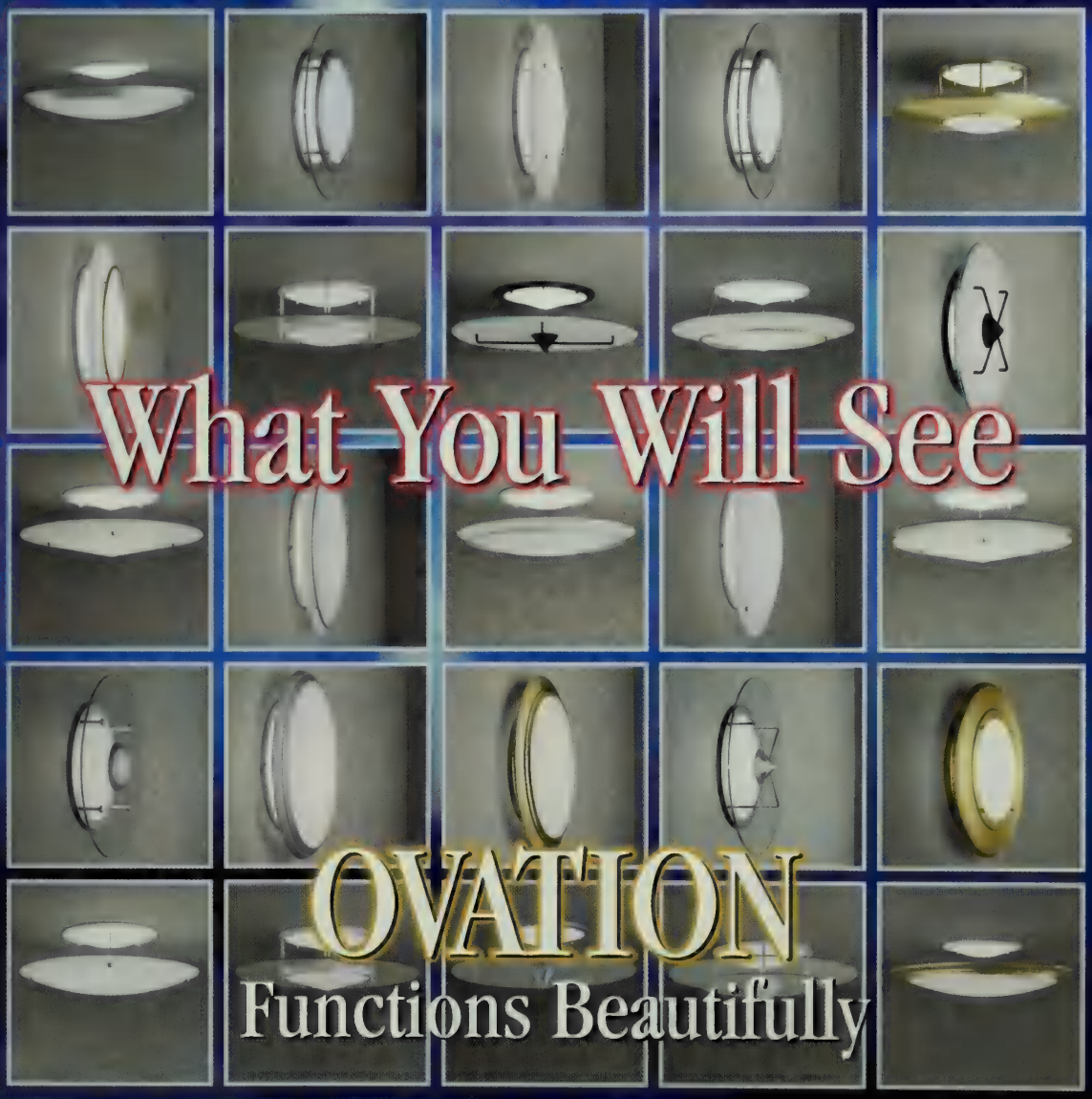
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In the ceiling



In the wall



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LIGHTING

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Engineered luminaire

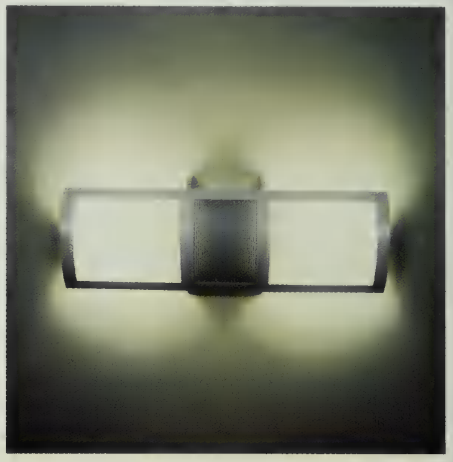
A new fixture for a new lamp, the Style 204 semirecessed wallwasher is scaled to commercial interiors with walls 8 to 12 ft high. The fixture's asymmetric optics take advantage of new Hex Tube CFLs to distribute the same amount of light as standard sources using only half the number of fixtures. 203/931-4455. Elliptipar, West Haven, Conn. **CIRCLE 289**



289

This is a clock. Really.

Suggested for building lobbies, the Virtual Clock consists of two pinwheel-like arms a yard across, lined with LEDs. Like the blades of a fan, the arms spin fast enough to disappear in a blur, while a microchip tells the LEDs to pulse at the precise position that represents the time. A remote controls different colors and visual effects. 212/473-1125. Electro-kinetics, Inc., New York City. **CIRCLE 290**



290

Vanity or corridor fixture

The 606 upright is an ADA-compliant hall light; turned sideways, it can be used above a mirror. Diffusers can be opal, green or etched acrylic, faux alabaster, and mica. Takes triple-tube or quad CFLs as well as incadescent sources. Can be customized to suit specific projects. 510/234-2370. Shaper Lighting, Richmond, Calif. **CIRCLE 291**

291

Versatile cove illumination

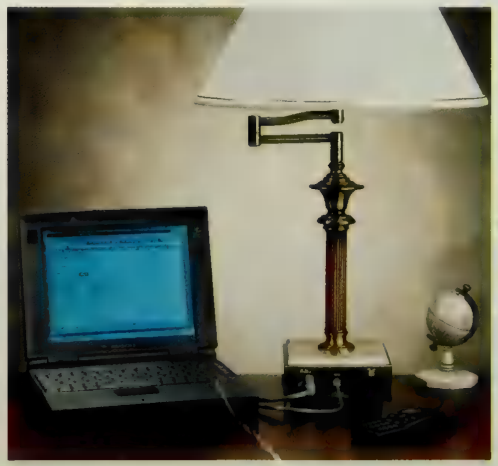
The In-Cove has a six-sided housing with three separate mounting planes set 10 degrees apart, a feature that lets the forward-throw optics of each fixture be tuned to suit a particular setting. 604/888-6811. Ledalite Architectural Products, Inc., Langby, B.C. **CIRCLE 292**



292

Lamp or modem?

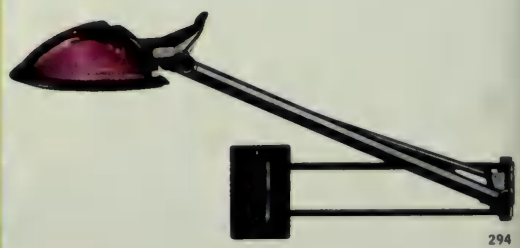
Designed for hotels that cater to business travelers, the Datalux lamp combines desk or bedside illumination with a data port, power outlet, and phone jack set in its base. 888/281-1233. Microsun Technologies, Cleveland. **CIRCLE 293**



293

Back in the office

A very adjustable task light, Halogen 4 is particularly suited to panel systems. Throughout its range of motion—up or down, left or right—the lamp head remains parallel to the worksurface, preventing glare on VDT screens. The shade may be ordered in amber, blue, green, purple, or black. 914/658-8393. Luxo Corp., Port Chester, N.Y. **CIRCLE 294**



294

Minimalist track lighting
A track-light extension of the RTX ambient luminaire line lets architects simplify a ceiling plane by mounting louver-lensed fluorescents, line-voltage PAR lampholders, and low-voltage monopoint spots on a single, pared-down system. Designed by Charles Keller, RTX works as a single luminaire or as a continuous-row assembly. Fixtures may be specified in new titan (silver) finish, as shown. 800/932-0633. Zumtobel Staff Lighting, Inc., Highland, N.Y. **CIRCLE 295**

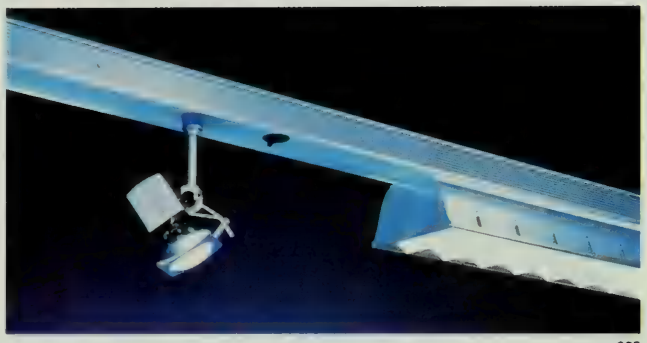
CFL bollard
Designed by King & Miranda specifically for compact fluorescents, Borealis has a botanical appearance said to work well with both contemporary and period landscapes. The luminaire may be ordered with a clear polycarbonate shade, as pictured, or with an opal diffuser. 954/349-2525. Poulsen Lighting, Inc., Ft. Lauderdale, Fla. **CIRCLE 296**

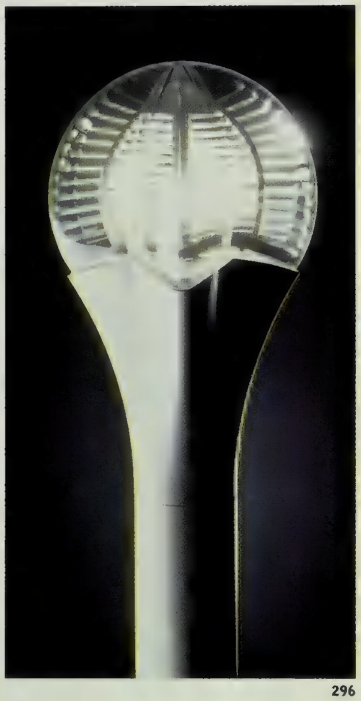
Perimeter indirect
Wall Xa-56, with its simple, eased-arc shape, can illuminate smaller rooms on its own or supplement pendant fixtures, brightening walls in larger areas. Its reflector gets a wide distribution from either T8s or CFL lamps. 781/294-0100. Litecontrol, Hanson, Mass. **CIRCLE 297**

Table/task light
Ula-Op is part of a family of table, floor, wall, and pendant lights made with Murano glass shades in any of five colors, a curved wood stem, and a nickel-plated base. Illuminating Experiences, Highland Park, N.J. **CIRCLE 298**

Experience the light
A work of art as much as a luminaire, Metamorfosi is an apparatus based on four halogen lamps lensed in white, blue, red, and green—the primary colors of light—controlled by a single remote. Any of 54 color scenes bloom at the touch of a button, from fiery volcano to earliest dawn. Unique housings include the Esperia table fixture by Ernesto Gismondi. 800/359-7040. Artemide, Inc., Farmingdale, N.Y. **CIRCLE 299**

Interior luminaire family
Orchestra is a recessed lighting system of square and rectangular housings: symmetrical forms that distribute an asymmetrical light from either ceiling or wall. Luceplan USA, New York City. **CIRCLE 300**


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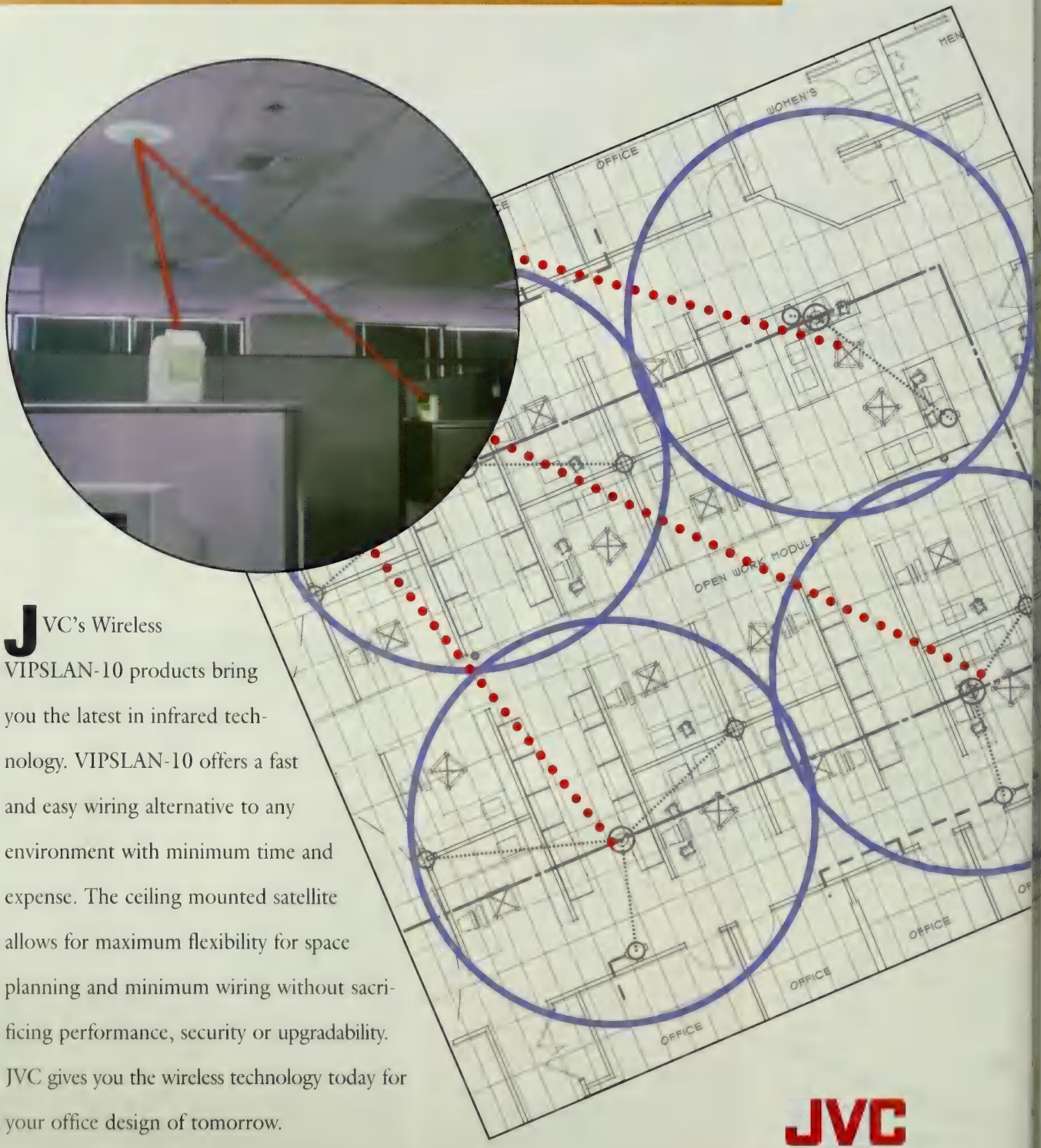

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300


299

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CIRCLE 49 ON INQUIRY CARD

How Long Should Buildings Last?

BUILDING LONGEVITY MAY FALL VICTIM TO COST PRESSURES AND LOW-REDUNDANCY TECHNOLOGIES, BUT MORE OBJECTIVE STANDARDS FOR DURABILITY MAY HELP RAISE PERFORMANCE.

by Virginia Kent Dorris

The value of using durable materials to create long-lasting buildings is, in concept, as indisputable as Mom, apple pie, and the flag. But selecting and specifying suitably durable materials can be challenging. There is the sheer number of competing products on the market and the abundance of claims about them. In promoting what they presume to be more durable materials and assemblies, architects too often have little objective evidence they can present to clients. Many architects also feel squeezed by those clients who budget for low-first-cost residential and light-commercial technologies without reckoning that wear levels, maintenance, or replacement cycles may exact unacceptable costs down the line. (The architect may then be blamed for the peeling paint, leaky sills, or prematurely fogged windows.) Without objective information, it can be difficult to justify systems or products that are judged to be better but are also more expensive.

Both client attitudes and the dearth of information may be changing, however. On the one hand, the cost to a building owner in loss-of-use brought on by what would otherwise be a minor failure can be astronomical. Further, standards-setting organizations are putting together new procedures that offer more objective means of defining, measuring, and evaluating the cost tradeoffs for various systems.

Permanence is relative

Durability is defined as the ability of a building or a building component to perform its required function over time in spite of degrading forces that act upon it. These forces can be natural or man-made, and include water, ice, wind, pollution, animals, and insects, as well as expected ordinary wear-and-tear and extraordinary abuse by occupants. A building's durability is usually discussed in terms of its service life: the time period that begins when the completed structure is handed over to the owner and ends when an excessive amount of money is required to operate, maintain, or repair the building or component. Service life does not simply refer to functionality. An assembly—anything from carpeting to cladding—can "ugly out," that is, become so streaked, cracked, chipped, soiled, faded, or otherwise unsightly that it can no longer be tolerated.



Buildings may fail catastrophically (like this one did in Florida's Hurricane Andrew). Others fail in terms of serviceability (like leaks). Some become so unattractive that they simply "ugly out."

Architects can dream of buildings that last centuries, but few have not felt the heat from owners who want buildings faster for less. It is conventional wisdom that the service life of much low-end speculative construction barely exceeds the mortgage or initial-lease term. One architect practicing in a major Washington, D.C., firm describes his situation: "It doesn't matter if I do the most extensive life-cycle cost analysis in the world and prove that using more durable materials will save money over time. If it costs more money now, the client doesn't want to hear about it."

"THERE IS A VERY LARGE COST TO SOCIETY OF PREMATURE FAILURE OF OUR BUILT ENVIRONMENT."

It's not just the cost-driven who fail to consider the long term: "The military's number-one priority is space," says Terrell Emmons, chief architect and associate director for design for Naval Facilities Engineering Command (NavFac) in Washington, D.C. "They would rather have more space than a better utility system or a better roof system." NavFac oversees the design and construction of facilities worth about $5 billion a year for the Navy, Marines, and Air Force. In response to agency-wide concerns about the high cost of operating and maintaining facilities, Emmons wrote a report published in April called "Life-Cycle Cost Considerations

Virginia Kent Dorris, based in Brooklyn, N.Y., writes on architecture and engineering.

Continuing Education *This month's installment of the ARCHITECTURAL RECORD/AIA Continuing Education series looks at design for durability. After reading the article, complete the questions (page 146) and check your answers (page 148). AIA members may fill out the self-report form (page 148) and send it in for two AIA Learning Units.—Mark Scher, AIA Director Professional Education Products and Services*

Learning Objectives:

After reading this article, you will be able to:

1. *List three kinds of building failure.*

2. *Identify four research methods, techniques, or tools and construct a seven-point checklist for improving durability in design and specification.*

3. *Explain how the move toward light factory assemblies in today's construction process may affect long-term building durability.*

EFFECTS OF FAILURE

CATEGORY	EFFECT	EXAMPLE
A	DANGER TO LIFE OR OF INJURY	SUDDEN COLLAPSE OF STRUCTURE
B	RISK OF INJURY	LOOSE STAIR NOSING
C	DANGER TO HEALTH	SERIOUS DAMP PENETRATION
D	COSTLY REPAIR	EXTENSIVE SCAFFOLDING REQUIRED
E	COSTLY BECAUSE REPEATED	WINDOW FASTENING REPLACEMENT
F	INTERRUPTION OF BUILDING USE	HEATING FAILURE
G	SECURITY COMPROMISED	BROKEN DOOR LATCH
H	NO EXCEPTIONAL PROBLEMS	REPLACEMENT OF LIGHT FITTINGS

NOTE: INDIVIDUAL FAILURES CAN BE IN TWO OR MORE CATEGORIES.
SOURCES: © BRITISH STANDARDS INSTITUTE

in Projects," in which he studied the regulations in place that mandate or encourage life-cycle cost analysis on projects. Although there was an awareness and an emphasis on durable construction throughout the agency's design-related regulations, he discovered that the lowest first cost usually took precedence in practice.

Many clients have learned the hard way that short-term savings can lead to long-term expenses, however. The developer of a 30-story California condominium saved money up front by cladding the building with an exterior insulation and finish system (EIFS) unsuited to the project. The cost of replacing the failed cladding several years later with a metal panel system was higher than the total initial cost of the building. Similarly, an owner's decision to substitute a less durable polyvinyl-chloride (PVC) flashing for the metal through-wall flashing originally specified for an exterior masonry wall in a Baltimore highrise saved $7,000—and played a major role in deterioration that led to a recladding that cost more than the original building. Other failures are less spectacular, more common, yet still costly (see chart, left). What does it cost a hospital when a leak puts an emergency room out of service? How do you account for the lost productivity when a cheap HVAC installation can't handle temperature swings or becomes a home to mold growth?

There are other hard-to-quantify costs. A generation ago, empty, obsolete factories spawned disinvestment in older cities. Today, crumbling strip centers and teetering shopping malls in older suburbs threaten a new wave of abandonment. "We know there is a very large cost to society of premature failure of our built environment in terms of actual dollars," says Richard N. Wright, director of the Building and Fire Research Laboratory at the National Institute for Standards and Technology (NIST) in Gaithersburg, Maryland. Wright points out that there is also a social cost to unchecked deterioration. "People have a sense of disgust when the paint on their houses is peeling off, or when the appearance of their office building goes quicker than they thought they had a right to expect."

Predicting performance

One reason owners often don't choose presumably longer-lived products and assemblies is that there is little objective knowledge that an architect can draw on to bolster the case for one assembly over another—especially if the cost differences are significant. Most architects rely primarily on product comparison and personal experience. Service-life prediction, however, is an inexact science, because it depends on a range of variables. In addition to the physical and chemical properties of the individual building elements, expected service life depends on environmental conditions, the quality of workmanship and installation, and expected maintenance levels (see methodology chart, page 137). The manner in which different construction materials work together in an assembly also impacts durability. Today's fee levels rarely support specialized research, but experts say that architects should be sure their assessments of product durability include incorporating guidance on past problems in the firm's master specifications or providing training; using accelerated-aging tests

Everyday steps to assure durability. Don't specify a product that does not have a significant **track record.** Ian Chin, vice president and principal with Wiss Janney Elstner Associates, an engineering firm based in Northbrook, Illinois, that investigates building failures, cites the use of unproven products and systems as the most common reason for durability difficulties. "It looks good on paper because it is lighter, thinner, more economical, or easier to construct, but these lighter, thinner systems invariably are not as durable as the heavier systems used in the past," he says. Many architects demand a five-year performance record for new materials.

Make sure that the individual **components** that make up a building assembly have **similar anticipated service lives.** Thomas A. Schwartz, chairman of the American Society for Testing and Materials (ASTM) subcommittee on the performance of exterior walls and president of Simpson Gumpertz & Heger, an engineering firm based in Arlington, Massachusetts, that specializes in analyzing building failures, offers an example. A masonry wall made up of bricks expected to last from 50 to 100 years develops problems after only seven years because it is constructed with unreinforced, thin PVC flashing, with a service life of less than 10 years.

Do as much **materials research** as time and money allow. Timothy Taylor, director of specifications at URS Greiner in Washington, D.C., recommends evaluating materials against a checklist of durability properties, including strength, moisture permeability, dimensional stability, abrasion and scratch resistance, compatibility and adhesion, resistance to freeze and thaw, and maintainability.

Make sure the building's **flashing details** are properly designed. Water leaking into building walls and interiors causes more damage than any other factor, say forensic engineers. Richard Koziol, an architect specializing in roofing and waterproofing systems with Wiss Janney Elstner Associates, advises designers to look beyond the flashing details in the binders in their offices, and to tailor flashing to the specific situation presented by the project at hand. "If these tasks are relegated to younger, less experienced people in the office, things may begin to fall apart," says Koziol.

Make sure the materials in the building envelope are appropriate for the **environmental conditions** at the site. Joel Weinstein, a senior vice president of LZA Technology, a New York City–based investigative engineering firm, points to a mismatch between cladding materials and climate as a common cause of problems. A stuccolike finish, successfully used in a warmer climate, had to be replaced when used in a New York City project because its small, decorative, partially embedded stones loosened and fell to the ground as a result of the large temperature fluctuations.

Don't forget what's happening at the **job site.** Creating a durable building is not only a matter of design but of on-site quality assurance and workmanship. It is important to have a knowledgeable field person available to address construction-related questions.—*V.K.D.*

but recognizing that their value is limited solely to the qualities tested; and constructing mock-ups both to verify performance (leakage, for example) and as a construction-quality assurance measure.

Defining a suitable level of durability

Standards-setting groups have begun to define procedures for evaluating durability. Whether or not such standards ever get legally adopted, they offer a framework for architects seeking to find the best tradeoff between first cost and long-term performance. They also offer a structured way to get the client involved in the decision-making process. Defining a suitable level of durability means first defining the service life of the building, say 25 years, 60 years, or 100 years. There are no legal standards for this, but there are conventions among building types. Ultimately, it is the owner's call.

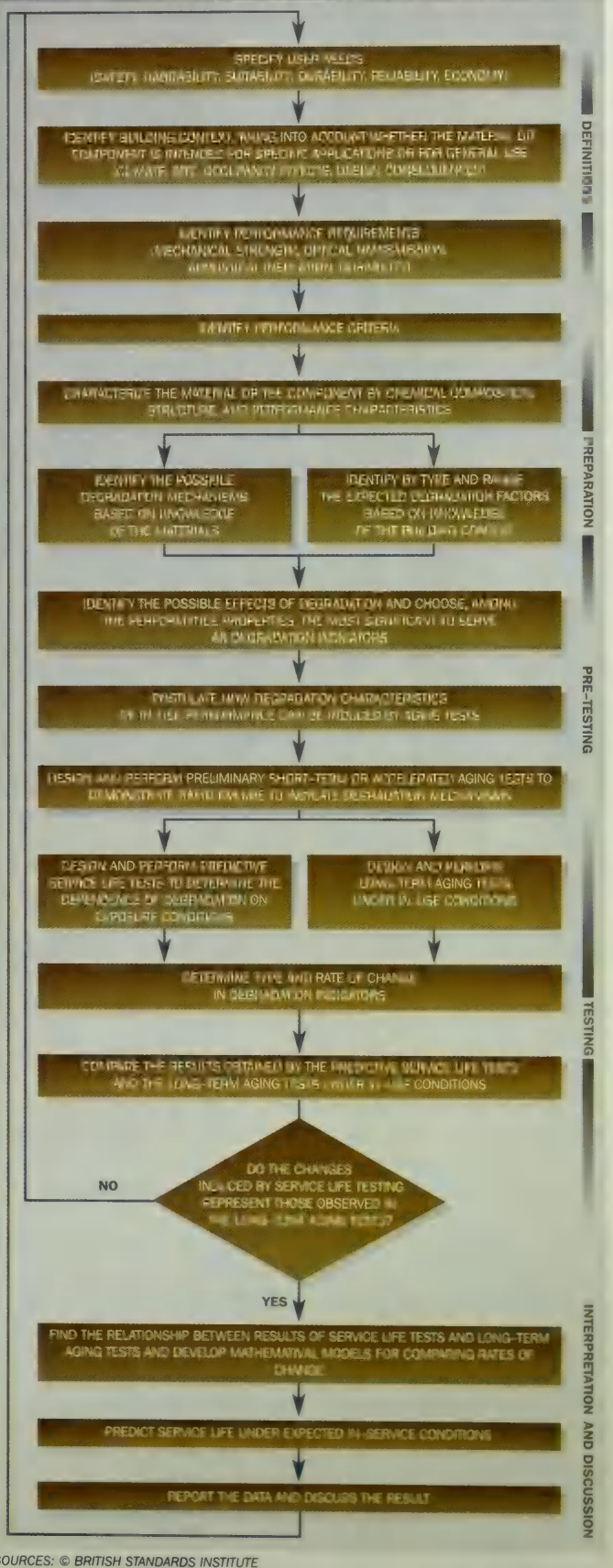
This does not mean every building element has to last the same length of time. Canadian facilities researchers have grouped building components into four service-life tiers. The primary tier is the building shell, which usually includes the structural system and building envelope, and is generally designed to last as long as the intended life of the building. The next category includes major building-service systems, such as elevators, furnaces, chillers, and major fans. These systems are usually expected to last at least 20 years. The next tier includes items such as interior partitions, ceilings, and floor finishes. These components usually change when building occupancy changes. The shortest-life category includes furniture and movable objects, which are expected to be changed by building occupants more frequently. Under these guidelines, building elements and systems that need to function for the longest time period are given priority in the allocation of up-front spending. "Architects need to know what service life an owner expects of each of the four main parts, so that the owner can maintain the building in a way that is affordable," explains Gerald Davis, architect and president of the nonprofit International Center for Facilities in Ontario, Canada. Davis also chairs the ASTM committee on performance of buildings and serves on several International Organization for Standardization (ISO) technical committees.

Judgments about the components' service life and maintenance costs may in the short term still be based on the designers' and owners' own assumptions, but a process like the Canadian Standards Association's "Component Design Decision" tables, which the architect fills out in consultation with the owner (see excerpt, page 138), may improve durability simply by focusing all the parties on durability issues because inconsistencies in component choice become apparent. The Canadian standard includes a maintenance guide, which summarizes the maintenance and replacement cycles agreed to for building systems, and helps the owner recognize that the procedures need to be followed to realize the predicted service life.

Davis points to another family of tools that help owners assess and understand performance and durability options. Some ASTM standards issued last year, known at the serviceability scales, consist of two matched sets of multiple-choice questions on more than 100 serviceability topics that correlate the owner's priorities with attributes of the building. The scales are currently being used to evaluate how fully completed buildings satisfy their users' needs, as well as to more clearly establish how user needs can best be satisfied by the proposed building. A computer version of the standards has been recently developed by Serviceability Tools and Methods, a company based in Ottawa, Ontario.

Clients who commission 100-year buildings generally expect the structure and the building skin, with the exception of the windows, to endure more or less indefinitely (public buildings in some European

METHODOLOGY FOR SERVICE LIFE PREDICTION



SOURCES: © BRITISH STANDARDS INSTITUTE

EXCERPT FROM MAINTENANCE GUIDE: CONDOMINIUM TOWNHOUSES
(DESIGN SERVICE LIFE = 50 YEARS)

BUILDING ELEMENT	MATERIAL(S) OR TYPE	DESIGN LIFE YEARS	FAILURE CATEGORY	MAINTENANCE CATEGORY	MAINTENANCE TYPE	MAINTENANCE FREQUENCY	ACCESS
WALLS	BRICK VENEER	50	COST, APPEARANCE	SIGNIFICANT	REPAIR	50 YEARS	OK (STAGE)
	CEDAR SIDING	20	COST, APPEARANCE	SIGNIFICANT	REPLACE	20 YEARS	OK (LADDER)
	BUILDING PAPER ON 1/2" PLYWOOD	50	SAFETY, COST, DISRUPTION	NONE	–	–	REMOVALS (SEE ABOVE)
	R20 BATT INSULATION	50	COST, DISRUPTION	NONE	–	–	REMOVALS
	4 MIL AIR/VAPOR BARRIER	50	COST, DISRUPTION	NONE	–	–	REMOVALS
	1/2" GYPSUM BOARD	50	DISRUPTION	LITTLE	–	–	OK
PARAPETS	FLASHING ON TOP OF BRICKWORK	20	DISRUPTION, APPEARANCE	SIGNIFICANT	REPLACE	20 YEARS (WITH ROOFING)	OK (LADDER TO ROOF)
	RIGID INSUL. AROUND BLOCKWORK	50	COST	NONE	–	–	REMOVALS (CEILING, INSUL.)
ROOF DECK	2x4 CEDAR ON SLEEPERS	15	SAFETY, APPEARANCE	EXTENSIVE	REPAIR/ REPLACE	YEARLY/ 15 YEARS	OK
	6" RIGID INSULATION	50	COST, DISRUPTION	LITTLE	–	–	REMOVE DECK
	WATERPROOFING MEMBRANE	15	COST, DISRUPTION	EXTENSIVE	REPAIR/ REPLACE	15 YEARS	REMOVALS (ABOVE)
	PLYWOOD	50	SAFETY, COST	NONE	–	–	REMOVALS (ABOVE)
	DRAIN AND ABS PIPE* TO S. SEWER	15	DISRUPTION	SIGNIFICANT	REPAIR	15 YEARS	REMOVALS (ABOVE OR IN WALL BELOW)

** THIS FAILED IN 5 YEARS DUE TO ICE FORMATION IN THE UNHEATED GARAGE.*

SOURCES: © BRITISH STANDARDS INSTITUTE

countries are expected to last forever). Ed Feiner, chief architect of the General Services Administration, who is currently in the midst of a multi-year, national courthouse construction program, says GSA places its priority on a well-constructed exterior envelope. Feiner admits that his office demands creativity from its architects, because high durability standards must be achieved within a limited budget. "If we are going to cut costs, we will not cut durability. We will choose less expensive but durable materials," explains Feiner. "The architects are in the best position to balance the give and take and the tradeoffs."

AN INTERNATIONAL STANDARDS-WRITING EFFORT PROMISES TO INCREASE KNOWLEDGE OF WHAT CONSTITUTES A DURABLE SYSTEM.

Tools that improve durability decision making

An international standards-writing effort currently being sponsored by ISO intends in part to help architects and clients improve communication and understand the implications of all aspects of durability-related design decisions. That effort is expected to pull together research findings from many sources, including seven international conferences on the subject held in the last 20 years, to create a performance-based decision-making framework. At the conferences, scientists from the United States, Canada, Finland, Japan, Singapore, Sweden, and the United Kingdom have presented research on durability prediction methods and modeling, degradation mechanisms for inorganic and organic materials, service-life testing, maintenance planning, and related topics.

The effort is being directed by Geoffrey Frohnsdorff, chief of the building materials division in the Building and Fire Research Laboratory at NIST. The first section of the standard, entitled "Buildings: Service Life Planning," is expected to be proposed as a draft international standard by year-end. The entire draft standard is expected by the year 2000. It will contain guidance for incorporating service-life planning for building materials and systems into the design process and details on how to determine the service life of specific materials. Other guidelines will help architects assess how well a completed design meets an owner's durability criteria and will include information on computerizing service-life data to facilitate comparison of materials. Another section under discussion would delineate what information product manufacturers should provide on service life.

Though the need for the durability standard has long been recognized, Frohnsdorff says, its development has become possible only with advances in computer technology that permit prediction, analysis, and storage of information on the service-life expectancies of individual materials. Frohnsdorff hopes that publication and use of the standard will provide an incentive for manufacturers and materials scientists to increase the flow of reliable information that designers and owners need to make accurate service-life predictions. The end result, he speculates, could be the development of expert systems and electronic databases that could greatly simplify and improve service-life prediction.

Consideration of consequences

While more objective standards for durability may encourage owners to set the building-longevity bar higher, design and construction industry participants seem almost unanimous in their agreement that durability falls victim not just to cost pressures but to the broad movement in the American construction industry away from tested-by-experience, built-in-the-field technologies (such as multi-wythe masonry) and toward thinner, lighter assemblies of factory-made products. Such newer assemblies present a number of problems. The performance of thin components over time may *(continued on page 162)*

Editing in Living Color

YOU MAY WANT TO CONVERT CAD IMAGES TO PIXELS OR INCLUDE PIXEL-BASED IMAGES IN YOUR CAD DRAWINGS. HERE'S WHAT ARCHITECTS ARE DOING—AND HOW THEY'RE DOING IT.

by Steven S. Ross

Architects are being pushed toward the editing of images beyond traditional CAD software by a number of forces: client expectations, advanced color-inkjet printing technology, and the needs of the Internet. Even if you're CAD literate, you may experience some problems expanding your skill base to include pixel-image editing, because non-CAD images differ in many ways from the drawings created with your CAD software. Image editors such as Adobe Photoshop create files in which the images are built up from individual dots, or pixels. CAD software, in contrast, stores each image element as a unique entity in a database. When you draw a straight line in a pixel-based program, you are creating a line of dots that may appear solid on the screen. If you enlarge the image on screen, you may see the individual dots. Draw a line in a CAD package, on the other hand, and the software stores the fact that it is a straight line, along with the coordinates of the starting and ending points. No matter how much you enlarge it, the line still looks like a line.

Fortunately, there are many packages, at prices that will fit any budget, that allow the pixel-based images to be created and manipulated. The pixel editor that comes with Windows 95 or NT may be all you need for simple tasks. It's called Paint, and it's found in the Accessories group. At the other end of the price range, Photoshop lists for $895 and will cost you about $600. Most high-end CAD packages accept pixel-based images, at least in BMP (bitmap) formats (there are several variations of BMP). And most image-editing packages will read and write a wide range of pixel-image formats, almost always with no loss of image quality, although there may be some loss of future image-editing flexibility.

In fact, the technology, combined with opportunities presented by the World Wide Web and cheap color printing, has lead many architectural firms to start imaging divisions—even multimedia operations. "Of course, we're often being paid like architects, while digital producers in other fields get more," says Kristin Johnson. She has been studying architecture and fine arts at the master's level and works for Mallea, Sheppard, McKay. The New York City firm, known as MSM, specializes in producing construction documentation for other architects.

Terry Beaubois, president of Terry Beaubois and Associates in Palo Alto, California, says his firm has been successful enough at doing multimedia work to set up a separate entity, RDC Interactive Media, Inc. He has also been experimenting with pixel-based tools, especially Adobe Photoshop, to enhance client interaction.

"Clients will bring in a picture of a house they like," says Beaubois, "or perhaps pictures of the roof or the windows." He uses a scanner to pull the pictures into Photoshop. Switching to CAD software (he uses several packages, but likes MiniCAD on the Macintosh best), he'll work with clients to do rough bubble diagrams, plans, and elevations. "As we develop an elevation," he says, "I paste the screen image from CAD into Photoshop and convert to RGB color." That trick works with most Mac and Windows software. You copy the screen image to the clipboard, then paste the image from the clipboard to a pixel package. The pasted image of the elevation will not contain any of the "vector" intelligence of CAD. But it will be compatible with the images scanned earlier.



A picture of the Gateway Arch in St. Louis was altered using the watercolor effect from Micrografx Picture Publisher.

Beaubois then combines pieces of the scanned photos with the elevation he's brought in from CAD. "There's a stamping [cloning] tool in Photoshop that lets me copy from one part of the bitmap into another, and from one bitmap to another bitmap," says Beaubois. He uses texture and parts of architectural features from the scanned images to "decorate" the elevation. Beaubois demonstrated this method at a remodeling conference and says that "people were out of their chairs."

He loves the interactive nature of the process, he says. "I want to get architects back to a pleasurable use of their time with clients, like conceptualizing or coming up with sketches." Even though the product is a two-dimensional vignette, he explains, "you can put in shadows as layers of a Photoshop image. I did this for the first time just recently. All of a sudden, the clients were evaluating it architecturally, like a blueprint. The next thing I did was to take pictures of the site and put the Photoshop-generated elevation image into the scene. "It doesn't have to be perfect."

Beaubois has started building up a library of textures to use with this client and others. "I started with a design using traditional materials like clay tile roof," he says, "and they suggested a metal standing-seam



A high-resolution (3072 by 2043 pixels) image (inset) was scanned by Kodak onto a PhotoCD disk. At this resolution, lines hold their contrast fairly well. A closeup of the tower (left) shows how far resolution can be taken when enlarging. This shot has much less detail than a similar shot taken with a telephoto lens (right).

roof. The guy's father had been a sheet-metal contractor. I went around looking for catalogs, things like European zinc-coated building materials, scanned some brochure material into Photoshop, stretched it to get the proper perspective, and laid it into their house. It looked great because it had this 'shadow' quality." Beaubois is also experimenting with using pictures to build up 3D scenes the client can walk around in, utilizing Quicktime VR and other tools.

Kristin Johnson of MSM warns, however, that stretching a pixel image to cure keystoning or other perspective problems can produce horrible results. "The image is not made of vectors, so stretching adds and subtracts pixels," she says. "The way the image gets distorted is sometimes so drastic, even when making minor alterations." Photoshop and Corel Photo-Paint have been somewhat improved to handle multiple distortions better.

In a CAD package, the image quality would not be affected, because changing perspective or stretching simply changes the endpoint coordinates of the various vectors that make up the CAD drawing. Architects will have the most problems with such matters when they try to produce fancy finished graphics for brochures or Web sites. But for interaction with clients, speed counts more than perfection.

Alan Goldstein, a Maryland-based architectural photographer, uses Micrografx Picture Publisher to "clean up" photos, perhaps removing foreground objects or changing the views out the windows, especially when he must photograph the site before construction is completed. "We never change the building itself, however," he says.

"We do not change the building," agrees Johnson. "We're getting together a portfolio package that adequately shows what we can do," she says. "A lot of projects are outstanding but difficult to photograph. So we take out the telephone poles and blurry autos in Photoshop. We do the layouts in Quark XPress."

While Beaubois has found new uses for pixel editors at the start of the design process, Johnson's organization uses Photoshop images at the end as well. "We'll do realistic mock-ups of designs [for instance, using drawings of buildings against photos of original settings] and fax them to Paris or Milan so people can sign off on them," she says. "The communication is more efficient, more accurate."

Photographer Goldstein had been playing with digital imaging for several years but began using the technology in earnest only in 1997. One of the biggest problems he's faced in architectural photography, he says, is "the odd color balance of new lighting systems." He says it's "hard to get it right" on slide film, which is sensitive to changes in light's color balance. Now, however, he uses Fuji NPS color negative film and scans it into a Picture Publisher file from which he can have a large transparency made.

Jim Karo, of Visual Impacts, sells what he calls "computer imaging design software" based on Micrografx Picture Publisher. Their Earthscapes package for landscapes allows prospective clients to review proposed solutions quickly and easily. There are vector-based packages—some of which even show plants growing—but they are much slower and therefore much less interactive. And they produce results that are not as finely detailed.

The basic $500 package includes Picture Publisher, on-screen high-resolution image libraries, and 30,000 clip-art objects and photos. Another $300 buys a site-plan package and estimator software. Picture Publisher offers infinite levels of undo; perspective and skew features to match photos of buildings and land features with possible planting solutions; and a clone tool that easily "paints over" the old landscape in the base photograph. This makes it easy to work with clients interactively, changing things on the fly. Until now, Karo says, "architects have been the hardest sell—contractors and nurseries got it first. But the ability to edit the drawings, make changes, is what's winning architects over."

CLIENT DEMANDS, COLOR-INKJET PRINTING TECHNOLOGY, AND THE NEEDS OF THE INTERNET ARE FORCING ARCHITECTS TO LEARN PIXEL-BASED SOFTWARE.

Equipment and memory requirements

Pixel-editing software, with some exceptions, places roughly the same strain on a computer system as does CAD software. As with CAD, editing large pixel images can require lots of memory. In fact, graphic artists often have 128MB or more of RAM installed in their machines. But don't let that scare you. Architects often work with fairly small image files. A bitmap of a 1024-by-768 screen, for instance, will be under 2MB at 256 colors and 6MB at 16.7 million colors. With Photoshop or Picture Publisher, that means 32MB of random-access memory is comfortable.

Graphic artists usually work on a Macintosh, however, and architects are much more likely to be using PCs running Windows NT. Also, CAD workstations usually have graphics cards that are optimized for 3D images. Your computer will manipulate pixel images differently for

Digital cameras catch pixels on the fly. Ever wish you could document a site problem with a photo and immediately transmit the image to the client's office or to a consulting expert? Take a few photos of a project for inclusion in a quick brochure? You can do that and more with the new digital cameras. Prices are dropping rapidly; expect to pay $700 to $900 for a complete architect-ready outfit now, and maybe a few hundred dollars less by January. (A year ago the price for cameras of this quality was $5,000.) But you must choose carefully. The marketplace is still evolving, with different cameras at wildly different prices, and your needs as an architect may differ from those of the general public. Here are the key points to consider.

The standard snapshot digital, with 640-by-480-pixel resolution, will probably not be quite good enough. The images on this page were taken with a Kodak DC-120, which is advertised as 1280 by 960 pixels. The actual "optical" pixel count is 984 by 850; the camera interpolates to get the higher count. As you can see here, image quality is acceptable for most purposes. At press time, the street price for this camera was about $600—probably the least expensive model you will find suitable.

The usual color depth is 24 bits per pixel. That gives 16.7 million colors—enough to get accurate color representation. But 30 bits per pixel is better. The extra bits go into extending the gray scale, which improves resolution in the shadows and gives you more tolerance for weird lighting. At 24 bits, you may be able to cure most problems by using pixel-image editing software like Photoshop or by adjusting exposure, but these take time and expertise. Macro focusing is important for closeups of details in workmanship, like a faucet or a light fixture. The cameras mentioned here can all focus well within one ft.

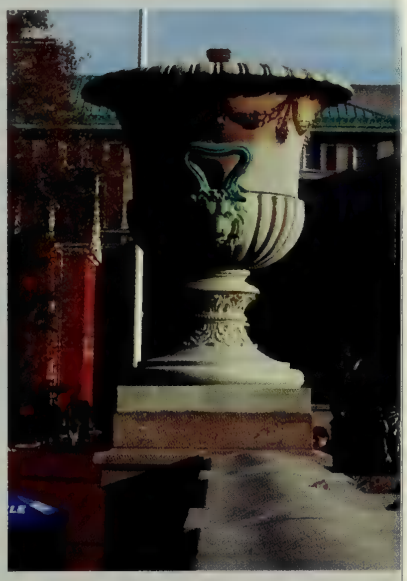
Most of the cameras of the resolution you should be considering have zoom lenses. The image-capturing area (the area of the CCD cell that senses the light) is smaller than a normal negative, so if you're used to a 35mm camera the focal lengths will seem odd. The Kodak DC-120, for instance, has a zoom lens with a 7-to-21mm range. That's about the same as a 35mm camera with a 38-to-114mm zoom.

Getting your images out of the camera and into your computer can be tricky. Check to see whether the camera comes with software for your computer—Macintosh or PC. Most cameras can be connected to a computer's serial port for downloading. Most also allow you to move the camera's memory card, where the images are stored, to a computer equipped with a PC-card slot. Almost all laptops have such a slot. PC-card slots can be added to other computers for about $100.

There are two incompatible standards for the memory cards themselves. The most popular by far is called CompactFlash by its inventor, SanDisk. The cards themselves are often postage-stamp size but fit into an adaptor that allows them to be used in standard laptop-type credit-card-size PC-card slots. Their internal logic allows them to be recognized by your system as a hard drive. The software drivers for that are built into Windows NT and 95. Intel has been pushing its "linear memory" miniature cards as a standard. They use different software than the CompactFlash. Considering its normal success in setting standards, Intel has not been getting its way; most cameras use CompactFlash, although each camera maker has its own name for it. The price is about $20 per megabyte and dropping fast.

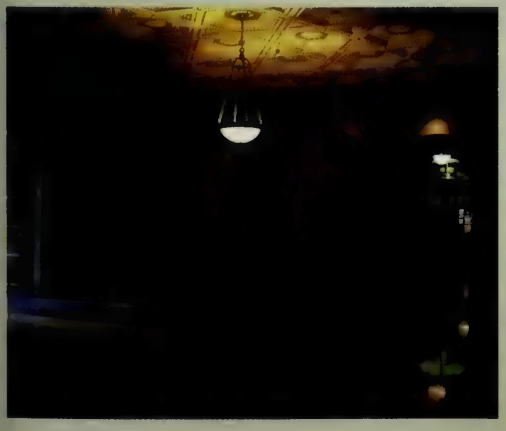
A megabyte typically holds two or three high-resolution images. A 2MB card usually comes with the camera. You'll want a 10MB card unless you expect to keep your laptop handy for frequent transfers. Rechargeable batteries are a good investment, since these cameras eat a lot of power. All the models with high resolution have viewing screens built in, but they typically measure fewer than two in. on the diagonal, which is too small for serious work.

The range of cameras is expanding quickly, and several models in addition to the Kodak DC-120 caught our eye. Agfa's ePhoto 1280, which has an optical resolution of 1024 by 768 and 30-bit color depth, had a street price of $800 at press time. Its compression technology does not seem quite as good as the Kodak's, leaving some jagged edges on sharp diagonals. But the shadow detail is excellent. Epson Photo offers the PC 600, also with 1024-by-768 optical resolution, with 24-bit color and a fixed-focal-length lens. There's a panoramic mode (1024 by 384) to save memory. The street price was $700 at press time. The Kodak DC-210 has the highest optical resolution available for the price ($800 at press time)—1152 by 864—but it is equipped with only a two-power zoom lens and has no Macintosh software.



Digital cameras capture site details in pixel form so they can be loaded into a PC and edited instantly.

The images here are displayed approximately full-frame. To achieve that without creating printing problems, we aimed for 266 dots per inch in the image, the same dpi at which photographs in this magazine are printed. A color printer attached directly to a computer usually provides an excellent-quality, full-frame printed image 5 by 7 in. wide at 200 dpi. Higher magnifications may also produce good results, especially with high-contrast images. We reduced color saturation slightly for reproduction purposes.—*S.S.R.*





An underexposed image (left) can sometimes be corrected using pixel editing software. Photoshop was used to correct this interior (right).

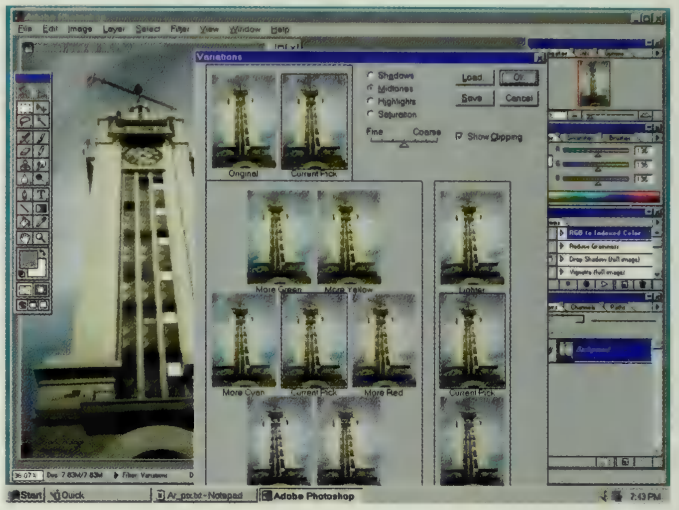
the screen. Thus, you may not be able to edit a large pixel image as quickly as you might expect on a workstation that's tuned for CAD software. Nevertheless, the difference probably won't be critical unless you handle many, many large pixel images every day.

Converting transparencies, negatives, and prints to a form the computer can understand can be done by many photo stores and copy shops. You can also get your images on high-resolution Kodak PhotoCD disks. (The standard disk's highest resolution is 3072 by 2048 pixels and "professional" quality can be 8000 by 6000; that's more than most amateur equipment can provide.) But because of delays getting images back on disk, you will almost certainly want to purchase a scanner—at least for emergency work. One type handles slides and negatives; look for at least 1800 dots per inch (dpi) actual (optical) resolution. The other type handles reflective art—photos or brochure pages; they can all produce scans of at least 300 dpi optical resolution, which is usually enough for working with clients. Expect to pay $200 to $600 for a flatbed scanner and $1,000 or more for a transparency/negative scanner.

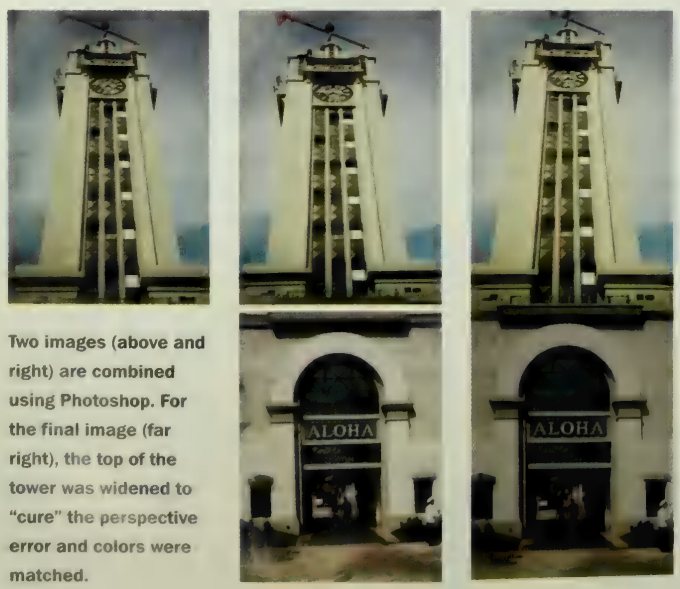
Most scanners are small computer serial interface (SCSI) devices. They attach to a SCSI card or use SCSI software to convert a printer port. A few slow scanners use serial connections. Scanners that use the new faster and easier-to-configure USB port are due soon. (USB stands for "universal serial bus," a technology that is completely different from the old serial ports to which your modem or plotter may currently be attached.)

A good compromise is to use moderately priced scanners for most work to preserve deadline flexibility, and to do critical work on the outside. Digital cameras are improving quickly, too, and can help you meet a deadline (see sidebar on page 143).

The Macintosh has many small advantages over Windows computers for pixel-based images; that's why so many graphic artists prefer the Mac. The in-monitor color balance is more constant, for instance, and the default display is always 72 dots per inch. This allows you to quickly grasp the image's true size. Photoshop is available on both platforms, but it has more features on the Mac than on the PC. Although Corel has supported Macintosh in the past, its latest package is for Windows only. Micrografx Picture Publisher is also Windows-only. All the newer packages are "32-bit," which refers to the operating system, not the number of bits per pixel. You'll want 32-bit software; it runs faster than the older 16-bit packages and is generally more resistant to system crashes.



Adobe Photoshop's color controls are unparalleled. Here, you can preview a wide range of color modifications at once.



Two images (above and right) are combined using Photoshop. For the final image (far right), the top of the tower was widened to "cure" the perspective error and colors were matched.

The big four software producers

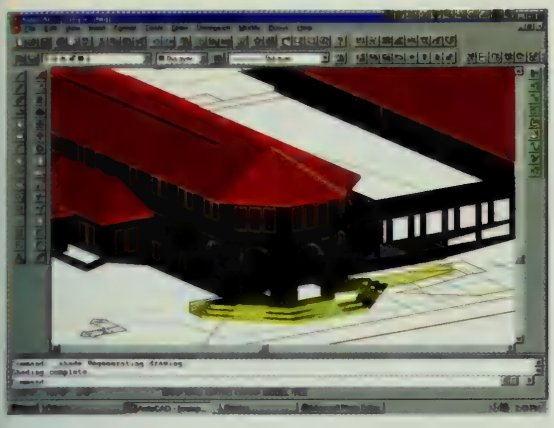
There are four main software producers for pixel-image editing:

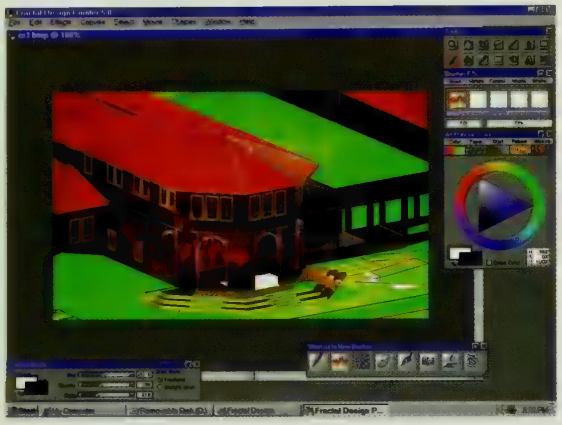
Adobe (www.adobe.com) offers Photoshop, by far the most widely used package among graphic designers. There are versions for the Macintosh and for Windows NT and 95. Adobe, as befits the industry leader, does not feel it necessary to offer Photoshop with its other graphics products (such as Adobe Illustrator, a vector-based package) in a bargain-priced graphics "suite."

Corel (www.corel.com) has an illustration program called CorelDRAW that has been extremely popular with architects, but the company offers a pixel editor (Photo-Paint) as well. You can get them together in a feature-rich graphics suite that includes 3D modeling. Corel packages the product with a particularly wide range of import and export filters, allowing great flexibility in image-file formats.

Micrografx (www.micrographx) offers Picture Publisher for Windows NT and 95 and also sells an attractively priced suite that includes 3D. Picture Publisher has always been appealing because of its interface (it is the most intuitive of the vendors' offerings). Some architectural photographers, however, told us they liked 6.0's album feature better than 7.0's media catalog, for keeping track of multiple images. The 7.0 upgrade was released this past June; 8.0 is expected in early 1998. Micrografx's Designer Technical has won a following among architects in recent years, probably displacing CorelDRAW in popularity.

MetaCreations (www.metacreations.com) markets Painter 5.0 (formerly Fractal Design Painter, before Meta Tools and Fractal merged last year to form MetaCreations), which has a rich set of drawing tools that mimic watercolors, pastels, and other techniques. Those tools tend to be better than their counterparts in the "pure" pixel editing programs. But Painter 5.0's pure editing features are not quite as good. The price is $299 list and about $200 on the street. MetaCreations also sells Kai's Power Tools, which plug into any of the other programs, improving their editing features.





A drawing built in AutoCAD 14 (left) can be captured during a client session by pressing the PRINT SCREEN key. The image can then be rendered in another program, such as Painter 5.0 (right).

Microsoft itself packages a straightforward pixel editor, Photo Editor, with Office 97.

All of these packages allow export to file formats supported by Web browsers (GIF and JPEG). Photoshop also supports the Portable Network Graphic (PNG) standard that adjusts color balance according to whether the image is displayed on a Mac or a PC.

A closer look at the packages.

Adobe Photoshop 4.0. This package is the clear choice of professional graphic artists, most of whom, as we already noted, use it on a Macintosh computer. The latest version, 4.0, has been on the market for about a year and has an interface that is much changed from older versions. Nevertheless, if you intend to use "outside" contract help for your pixel editing chores, this is the software with which the people you hire will be most familiar.

Photoshop 4.0 makes it particularly easy to combine multiple images; each new section you add now goes into its own layer by default, making editing by relative novices more flexible. You can still adjust colors in all the layers at once through an "adjustment layer" that modifies whatever layers are below it.

You can scan an object from a catalog and use Photoshop to easily skew the scanned material to fit into your image. Photoshop lets you perform multiple skewing actions—deforming, rotating, and so forth—and then apply all the actions at once to the image. This greatly improves the quality of the final image, compared to applying one action at a time. (Remember, each action requires the addition and subtraction of pixels; the cumulative effect of multiple actions will be to degrade the image quality.)

WHEN AN IMAGE IS ALTERED, PIXELS ARE ADDED AND SUBTRACTED, EFFECTIVELY DEGRADING THE IMAGE.

Adobe has highlighted its new macro command ("actions") feature in its literature to allow batch processing. That's been of more use to graphic artists who want to produce or modify dozens of images at the same time. But architects will find it useful for such tasks as acquiring groups of digital images all at once from a digital camera.

Corel Photo-Paint 7. We reviewed Photo-Paint 7 as part of the larger CorelDRAW 7 suite. Corel has always emphasized CorelDRAW, its vector-based drawing tool, despite heavy competition from Adobe Illustrator and Micrografx Designer, among others. But Photo-Paint has matured into a top-line product as well. Like Photoshop, it has a new skew/distort/perspective tool that saves up all your actions and applies them simultaneously, greatly improving image quality.

Architects will love the Image Sprayer tool—which can paint leaves and other objects onto the base photograph—and the lighting-effects tools. The program offers better memory management than earlier versions, so larger images can be handled with greater speed and less chance of crashing.

Photo-Paint alone is $350. The overall suite has a list price of $695 but is usually seen discounted to around half that; a liberal upgrade policy for users of older versions, or of Corel Ventura or Office Professional, gets you the suite for $249. For the money you also get CorelDRAW, Corel DREAM 3D for 3D modeling, rendering, and animated scene creation, compatibility with Digimarc Corporation's digital watermark (Photoshop has it, too), scanner control, a multimedia file manager, 1,400 fonts, more than 30,000 clip art images, an amazing range of import/export file-conversion filters, and lots of other utilities, especially for Web publishing. It also comes with "light" versions of Kai's Power Tools and other plug-ins.The package has been shipping since late 1996 and has gone through many minor revisions since then. It requires Windows 95 or NT 4.0. CorelDRAW's latest version is not available for the Macintosh.

Micrografx Picture Publisher 7.0. With this package, you get much of the power of Photoshop at about a sixth of the price—less than $100. A suite, with 3D and draw programs, is $350. Photoshop is faster on large images and has more features, but those advantages are generally of greater importance to commercial artists than to architects. Picture Publisher allows multiple undos of image edits and even allows the reordering and selection of specific actions in the stack of commands that could be "undone." That's a nice feature when working with clients.

Perhaps the best example of differences in design philosophy between Picture Publisher and Photoshop is in the "transformation" system for skewing and rotating images. Photoshop gives better quality by collecting all the actions you apply to an image and performing them at once. Picture Publisher's multiple-undo feature (which works even after files have been saved) gives you better control over editing each step in a multiple transformation and allows for more interactivity when you're dealing with clients—but the final image quality will probably not be as good as with Photoshop.

All three of the packages described above, along with Painter 5.0 and many other pixel programs, will accept plug-in filters. The most popular family of filters, the Kai's series, comes from MetaCreations. Kai's Power Tools 3.0 has a street price of less than $130. ■

AIA/ARCHITECTURAL RECORD CONTINUING EDUCATION

INSTRUCTIONS

- Read the article "How Long Should Buildings Last?" (pages 135–38) using the learning objectives provided to focus your study.
- Complete the questions below, then check your answers (top of page 148).
- Fill out the self-report form on page 148 and submit it to receive two AIA Learning Units.

—Mark Scher, AIA Director Professional Education Products and Services

Questions

1. Explain when an assembly's service life might be considered over.

2. Compare the bases architects usually use to determine durability. What are the advantages and limitations of more sophisticated techniques?

3. How might emerging durability standards help architects and owners define and achieve desired levels of durability?

4. How can architects use tools such as the ASTM serviceability scales?

5. What is an important construction trend and its implications affecting assembly durability?

6. Using the article's suggestions and examples, construct a short checklist for improving product durability decisions.

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AIA/ARCHITECTURAL RECORD CONTINUING EDUCATION

ANSWERS

Answers refer to the article "How Long Buildings Should Last?" (pages 135–38). The questions appear on page 146. To receive CES credits, fill in the self-report form below.

1. A building's service life is effectively finished when an excessive amount of money is required to operate, maintain, or repair the building or when a building becomes so unsightly that it can no longer be tolerated. (Though not stated in the article, it is also finished if the building has to be demolished for other purposes.)

2. Architects at minimum rely on product research and on their past experience with materials. Service-life prediction depends on a range of variables, including the physical and chemical properties of the individual building elements, environmental conditions, the quality of workmanship and installation, and expected maintenance levels. More sophisticated materials analysis might be undertaken by a specialized research, technology, or testing division, but fees might not support such an effort.

3. Architects and owners may define the service life of the building. Assessments of individual systems and components may uncover inconsistencies. Summarizing the maintenance and replacement cycles agreed to for building systems helps the owner recognize that the procedures need to be followed to realize the predicted service life.

4. The serviceability scales can act as a communication and needs-analysis tool to help an architect work with an owner to assess building performance and durability requirements. Such questionnaires and more objective standards can aid in defining and/or refining programs as well as evaluating eventual user satisfaction.

5. The construction industry is adopting thinner, lighter assemblies of factory-made products. The long-term performance of thin components, which may have less designed-in redundancy, are not fully understood. Components may be used in ways a manufacturer may not have anticipated. The craftsmanship and engineering quality of new technologies will need to be improved to insure long-term performance. Field installers will need to have an understanding of how components work and interact.

6. a) Specify products with significant track records. b) Make sure that the individual components that make up a building assembly have similar anticipated service lives. c) Research materials as much as possible with emphasis on strength, moisture permeability, dimensional stability, abrasion and scratch resistance, compatibility and adhesion, resistance to freeze and/or thaw, and maintainability. d) Recommend construction of assembly mock-up and wind tunnel tests to accumulate additional information whenever possible. e) Make sure the building's flashing details are properly designed. f) Match cladding materials and climate. g) Have a knowledgeable person available to address construction-related questions.

AIA/CES SELF-REPORT FORM

(Use to report learning units earned for Architectural Record only.)

Member Information:

Last Name **First Name** **Middle Initial or Name**

AIA ID Number

Program/project title: Architectural Record (12.97)

☐ "How Long Should Buildings Last?" (pages135–38)

Completion date (M/D/Y): _____ / _____ / _____

Quality Level (QL) of this program: Each article will earn you a total of 2 LUs at Quality Level 2. (fill in:) ____ total LUs.

Quality Level for this article is 2. Completing the section earns a total of 2. Material resources used:
Journal article. This program addresses issues concerning the health, safety, or welfare of the public.

I hereby certify that the above information is true and accurate to the best of my knowledge and that I have complied with the AIA Continuing Education Guidelines for the reported period.

Signature **Date**

Send completed form to: University of Oklahoma, Continuing Education, AIA/CES, Room B-4, 1700 Asp Avenue, Norman, OK 73072-6400. Fax 405/325-6965. For additional information, call 800/605-8229.

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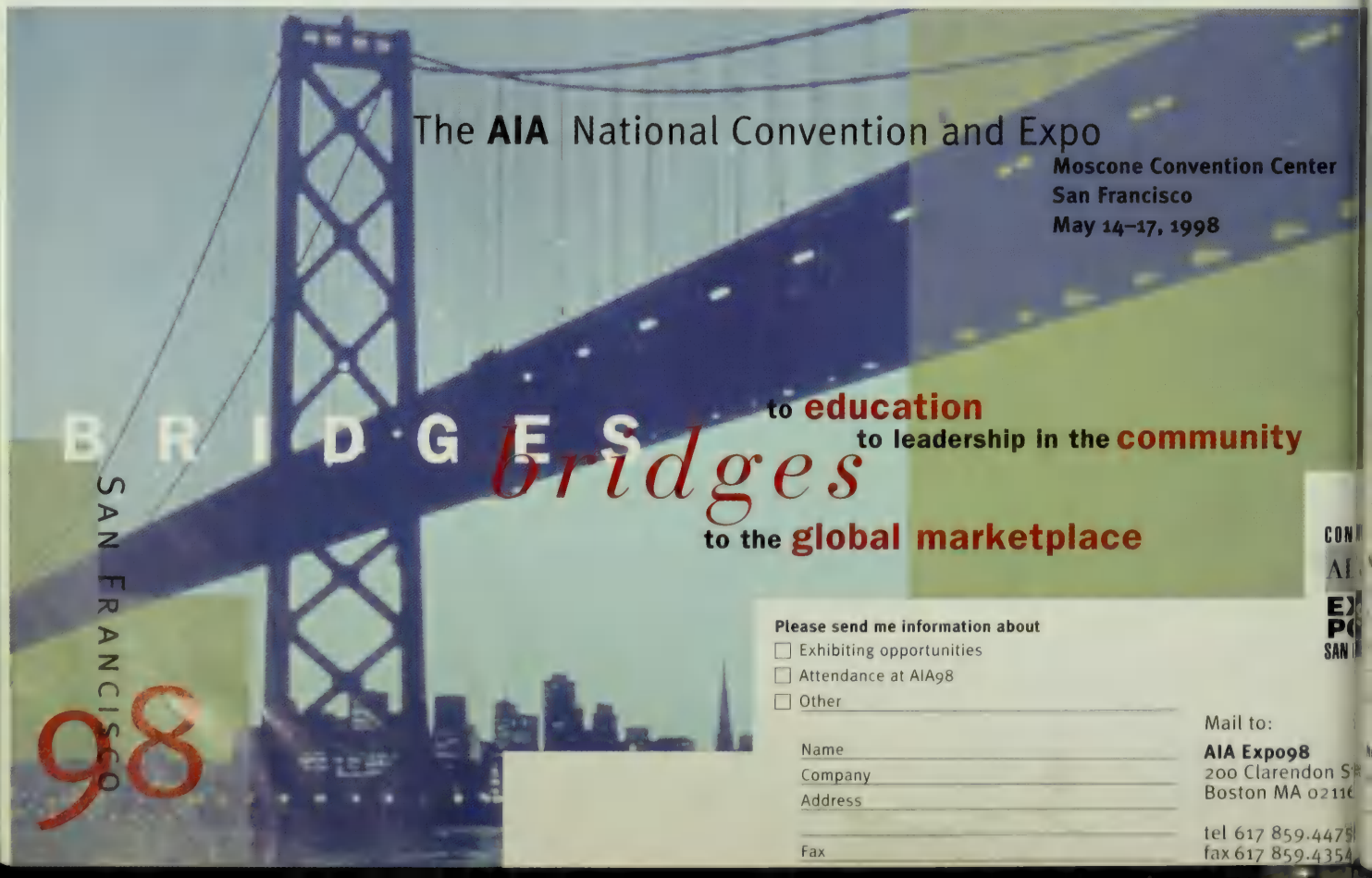
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PULSE *continued from page 22*

a computer? There were problems with the pencil-and-paper exam format, but it seems to me that the computer-graded A.R.E. will only promote more of the minimal technical competency that has given us so many technically correct strip malls and parking lots of the kind that make this city a bland, disorienting, unhealthy, and energy-inefficient place.

Let NCARB address this problem—and maybe a $980 fee could be justified on moral grounds. Otherwise, the organization is marginal to the practice of architecture and should not figure so large in the profession.

—Robert Kleyn
Southfield, Mich.

No: I recently finished all nine segments of the computerized exam and do not feel the higher fees are being well spent. I have encountered multiple layers of private contractors of dubious competence who seem to be the prime beneficiaries of these fees.

I waited six months for these contractors to reach agreement with the State of Maryland; discovered that my authorized files—along with those of a dozen other testers—were lost for more than a month without anyone noticing; and have waited more than five weeks for the results, which were to be delivered within two to three weeks of the exam's completion.

This is outsourcing at its worst: padding the pockets of opportunistic contractors, creating inefficiency, and decreasing the quality of service.

—Christine Malecki West
Washington, D.C.

No: Like low salaries, the increased cost of the exam reaffirms architecture's status as a gentleman's profession.

—Phillip W. Neuberg
West Hartford, Conn.

No: The massive increase in the exam fees is not only too steep but will likely perpetuate a major crisis within the profession. Many practitioners do not feel the need to become registered architects, much less members of the AIA. The increased exam fees will doubtless limit those who are qualified to take the exam from doing so.

When large bureaucratic costs—the exam, as well as hefty NCARB and AIA dues—dissuade qualified people from joining ranks with other professionals, it dilutes and diminishes the potential influence of a larger, more active membership. Most damaging, it reduces the credibility of the profession.

—C. Carl Westerman
Washington, D.C.

No: The Bar exam costs approximately $300; the starting salary for a lawyer is $70,000. The CPA exam is roughly $500; the starting salary for accountants is $45,000. The Architect Registration Exam is $980; the starting salary for architects is poor. Does this equation make sense?

—Kathy Washburn
Lombard, Ill.

No: Computers are meant to save time and money. The new exam doesn't accomplish either one.

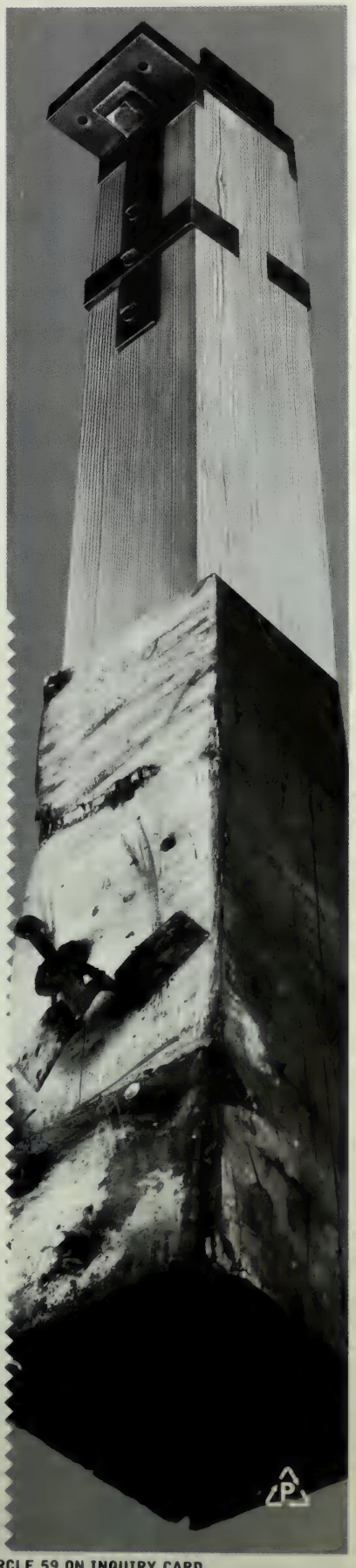
—Jeanine Russell
Greensburg, Pa.

No: The high price of the exam is aimed at those members of the profession who can least afford it: interns and recent graduates. This does not seem to be a good move for a profession traditionally criticized for being elitist and financially out of reach of many because of longer, more expensive educational requirements and low-paying internships. The price of the exam will further contribute to this problem; one of the main qualifications to become a registered architect will be if you can afford it.

It is too bad that the profession has seemingly ignored the needs of its younger members.

—Lisa Chronister Gray, Assoc. AIA
Oklahoma City, Okla.

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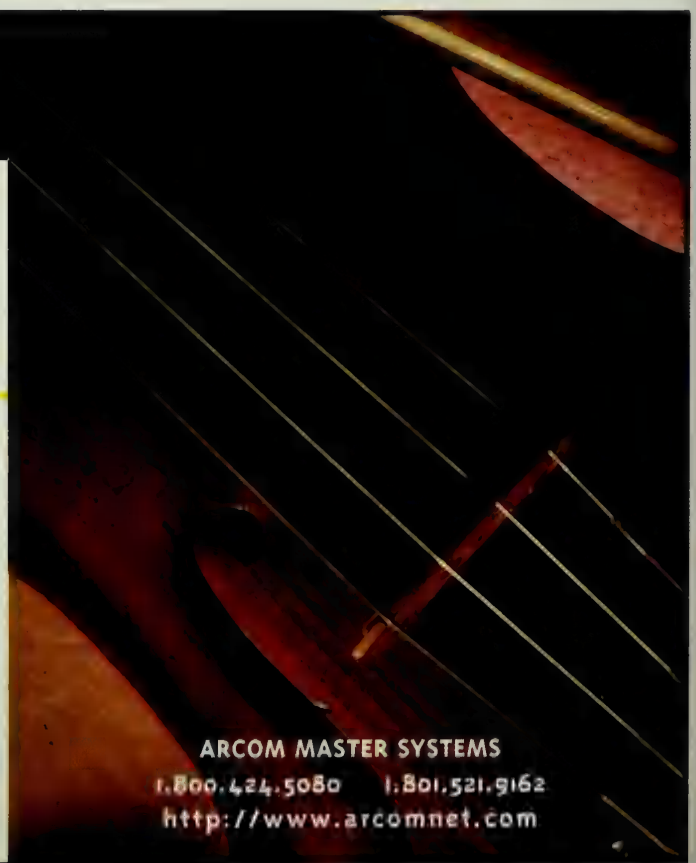
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CALENDAR *continued from page 44*

Through January 18, 1998
MAK Center
West Hollywood, California
Eight "architectural sculptures" produced from 1971 to 1977 by Gordon Matta-Clark, the late artist (and architect by training), are documented in "Architecture-Works by Gordon Matta-Clark." Call 213/651-1510.

Through January 18, 1998
American Craft Museum
New York City
"Four Acts in Glass: Installations by Chihuly, Morris, Powers, and Vallien" presents the work of four artists who have moved beyond the making of glass objects to examine the medium in larger spatial, architectural, and theatrical settings. Call 212/956-3535.

Through January 18, 1998
Walker Art Center
Minneapolis
"The Architecture of Reassurance," a traveling exhibition, includes 350 plans, drawings, and models from the archives of Walt Disney Imagineering. Call 612/375-7622.

Through January 31, 1998
Chicago Architecture Foundation
Chicago, Illinois
"Harry Weese: The First 50 Years" is a photographic retrospective of the Chicago firm's work. Also on view is "Chicago Union Station: After the Rush," showcasing the 1926 railroad terminal (January 6–31, 1998). Call 312/922-3432.

Through February 1, 1998
Canadian Centre for Architecture
Montreal
"Other Soundings: Selected Work by John Hejduk, 1953–1997" is the first retrospective of this major architect and thinker. The exhibition gathers together some 500 examples of his work, including drawings, models, books, and photographs. Call 514/939-7000.

Through March 1, 1998
Philadelphia Museum of Art
Philadelphia
"Philippe Starck Designs/Reinventing the American Hotel" provides a sampling of the French designer's objects and interiors, featuring everything from furniture to utensils. Also on view will be elements from a guest room at the Paramount Hotel. Call 215/763-8100.

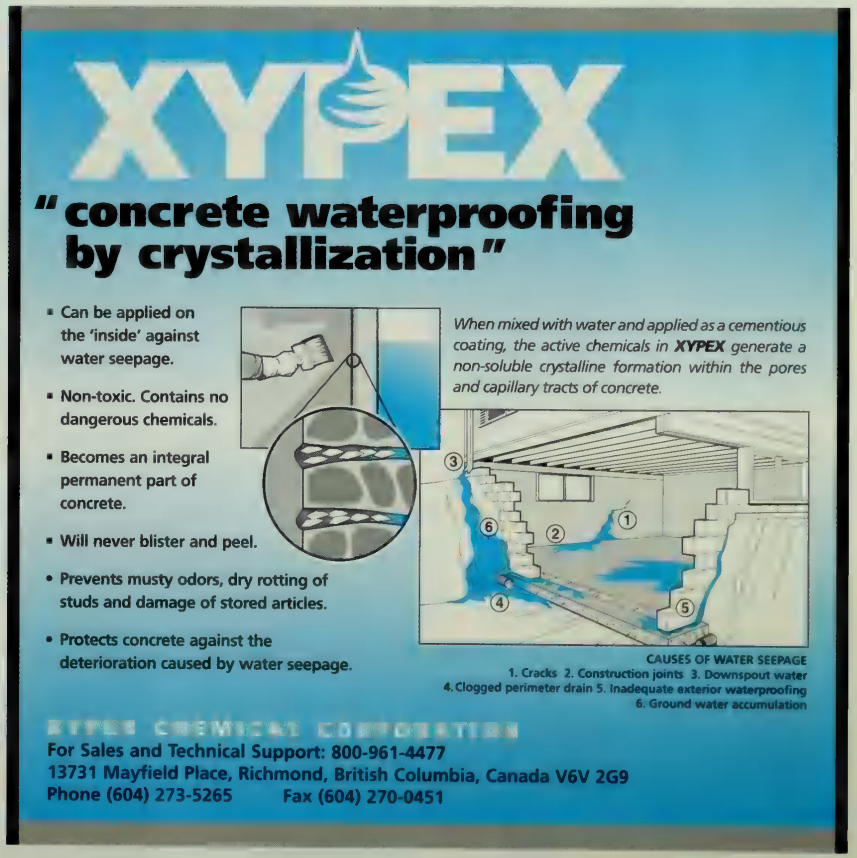
Through March 8, 1998
New-York Historical Society
New York City
The development of technology and imagery in Times Square advertising is traced in "Signs and Wonders: The Lights of Times Square." Actual signs and photographic records are displayed in the exhibition, the first to seriously examine this iconic feature of New York history. Call 212/873-3400.

Through May 31, 1998
Canadian Centre for Architecture
Montreal
An exhibition of architectural toys, "Toy Town," explores how village, town, and city have been represented by toys from several cultures over more than two centuries—ranging from early 19th-century German wooden villages to recent CD-ROMs. The exhibition comprises 26 toy towns from the CCA's collection. Call 514/939-7000.

Through June 30, 1998
National Building Museum
Washington, D.C.
"Planning Washington's Monumental Core" examines the history of urban planning in the nation's capital, from L'Enfant's design of 1791 to the Senate Park Commission plan of 1902 to the National Capital Planning Commission's Legacy plan, which was unveiled last year. Historic and contemporary photographs, as well as civic Web sites and interactive videos, are presented. Call 202/272-2448.

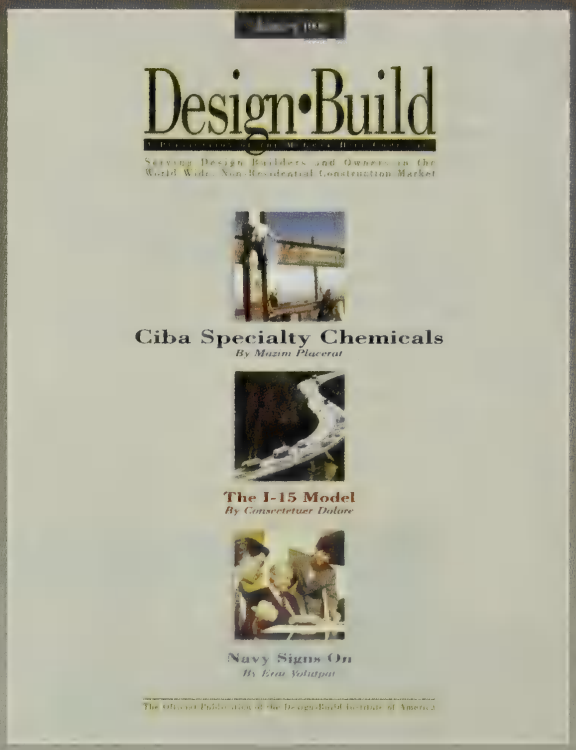
Competitions

The Architectural History Foundation announces the **Vincent Scully Research Grant,** a $10,000 biannual award to facilitate the publication of a monograph on American architecture. Preference for the grant will be given to projects that are substantially complete and/or under active consideration for publication. The deadline for applications—which must include a



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book proposal, an outline of how the award will be utilized, and other materials—is February 2, 1998. For further information about application, write the Architectural History Foundation, 350 Madison Avenue, New York, N.Y. 10017, or fax 516/944-5961.

The American Society of Architectural Perspectivists (ASAP) invites entries to its 13th annual **International Competition and Exhibition of Architectural Illustration**. Entries in two categories—formal and sketch—must be in the form of 35mm slides of original work (including computer renderings), representing proposed buildings, interiors, or architectural environments. Winning entries will be presented in a traveling exhibition that will open in Atlanta in 1998 in conjunction with the ASAP's national convention. Entry deadline is January 16, 1998. For more information on the competition or ASAP membership (a requirement of entry), write Architecture in Perspective 13, Alexandra Lee, Executive Director, American Society of Architectural Perspectivists, 52 Broad Street, Boston, Mass. 02109; call 617/951-1433 x225; or fax 617/951-0845.

"Positions" is the theme of the **1997–98 Young Architects Forum** sponsored by the Architectural League of New York. Architects and designers who have been out of undergraduate or graduate school for 10 years or fewer may enter. The entry deadline is January 27, 1998. Winners will be invited to exhibit their work at the Urban Center and present lectures in the spring. The jury will include Walter Chatham, Stan Allen, Steven Holl, and Billie Tsien. For further information or to receive an entry form, call 212/753-1722.

The Tile Promotion Board's **Spectrum International Ceramic Tile Design Competition** honors creative excellence in residential and commercial ceramic tile design. Architects, interior designers, contractors, builders, retailers, manufacturers, distributors, and others who have influenced the specification or installation of ceramic tile may enter projects completed between January 1996 and December 1997. The submission deadline is January 31, 1998. Winners will be announced during the International Tile and Stone Exposition's All-Industry Awards in Orlando, Florida, in April 1998. For more information, call the Tile Promotion Board at 800/495-5900 or 561/743-3150; or fax 561/743-3160.

Upcoming deadlines for the **1998 AIA Honors and Awards** program are as follows: Architecture Firm Award, Henry Bacon Medal for Memorial Architecture, Institute Honors, Thomas Jefferson Awards for Public Architecture, and ACSA/AIA Topaz Medallion for Excellence in Architectural Education, submissions due December 12; Honorary Memberships (nomination by national board member required), nominations due December 19; and AIA/NCMA Design Awards of Excellence, entries due January 16, 1998, submissions due February 20. For more information, call Robin Lee at the AIA at 202/626-7390.

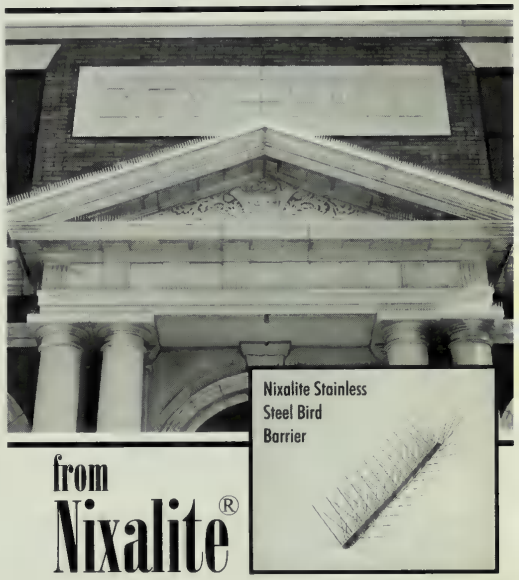
Assopiastrelle, the Association of Italian Ceramic Tile and Refractory Manufacturers, announces its **1998 Assopiastrelle Design Award**. The $5,000 prize recognizes designers or architects who have created innovative settings using Italian ceramic tiles. Projects must be completed by February 28, 1998, and submissions must be received by March 15. Write Abbate Communications, 222A Sixth Avenue, 2nd floor, Brooklyn, N.Y. 11215; or call 718/783-3160.

The **1998 DuPont Benedictus Awards for Innovation in Architectural Laminated Glass**, sponsored by DuPont and the AIA with the support of the International Union of Architects, recognizes outstanding or significant commercial and residential architecture that uses laminated glass. Entries must be submitted on or before March 9, 1998, and winners will be announced at the AIA national conference in May. A student ideas competition for the design of a courthouse is also being held. Write Stephanie Vierra at the AIA, 1735 New York Avenue, N.W., Washington, D.C. 20006; call 202/626-7446; or E-mail vierras@aiamail.aia.org.

Categories for the **Boston Society of Architects' 1998 design awards program** are healthcare, housing (single- and multifamily), and interiors. The first category is open to New England architects and architects with projects in the region; the second and third are open to Massachusetts architects and architects who have designed projects in the state. The interiors category is also open to interior designers. Submissions are due February 2, 1998, for healthcare and March 1 for housing and interiors. Contact the Boston Society of Architects at 617/951-1433 x221; fax 617/951-0845; or E-mail bsarch@architects.org. ■

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BUILDING LONGEVITY *continued from page 138*

not be fully understood, and they too often have less designed-in redundancy. Carrara marble, used for centuries, proved disastrous when sliced thin for application on curtain walls, for example. The manufacturer's intentions for a component may not have anticipated the uses to which that component is put. This is especially the case with roof or wall assemblies of many individual components that may be put together by mechanics in the field who have little understanding of what is required to make the entire assembly work. Consider gypsum board, an interior finish material pressed into service as part of thin-brick-and-metal-stud assemblies and EIFS. Until manufacturers developed more sophisticated sheathing materials and waterproofing techniques, wetted gypsum board was frequently implicated in failures.

The efficacy of technologies shorn of traditional safety factors relies heavily on the caliber of craftsmanship and the quality of engineering to insure long-term performance, says Joe Chadwick, an architect in contract administration for the Department of Facilities at Yale University and a member of the ISO technical committee on the design life of buildings. Because Yale requires that its new buildings be constructed in keeping with the character of its 300-year-old campus, Chadwick says the university avoids what he calls "developer" building systems, like EIFS and brick-on-metal-stud walls, because they are not proven to be as durable as he requires.

Chadwick points to Yale's Mellon Center for British Art, designed by Louis I. Kahn and completed in 1975, as a contemporary building that embodies the best philosophical and practical aspects of durable design and construction. Chadwick recalls that when the building's insulated glass units needed to be replaced three years ago (after enduring longer than their expected service life), he had the opportunity to re-examine the building's working drawings and construction. He was impressed, he says, by the inherent logic of the details, the way the materials fit together, and the order of the assembly.

Kahn's design included a stainless-steel channel at the base of windows inside the building that both served as a shadow detail and protected the wood finish element below from possible water damage due to incidental condensation on the glass. "The break-formed sections have a very specific hierarchy and a very specific purpose" says Chadwick. Kahn went so far as to specify marine-grade plywood as blocking material. That plywood, says Chadwick, serves as a stiffener, as a substrate for attachment, and as a thermal break that will last at least as long as the building. "You can see the thought process, the understanding and respect for the materials, the willingness to do the right thing," says Chadwick.

Further information

ASTM, Conshohocken, Pa., 610/832-9585, offers serviceability standards as well as "New Stone Technology, Design, and Construction for Exterior Wall Systems STP 996" (1988, Barry Donaldson, ed.) and "Water in Exterior Building Walls, Problems and Solutions STP 1107" (1992, Thomas A. Schwartz, ed.).

Other durability standards include "Guideline on Durability in Buildings" (Canadian Standards Association S478; 416/747-4000) and "Durability of Buildings and Building Elements, Products and Components" (British Standards Institution, London, England, 44/0181/996-7070).

See also D. Kaminetzky, *Design and Construction Failures, Lessons from Forensic Investigations* (New York: McGraw-Hill Inc., 1991). ■



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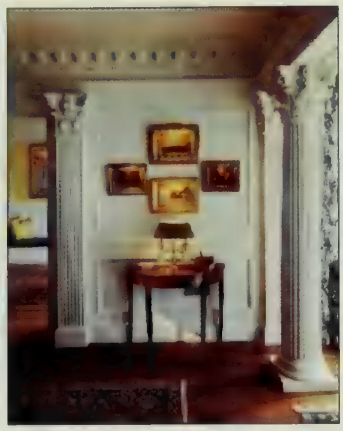
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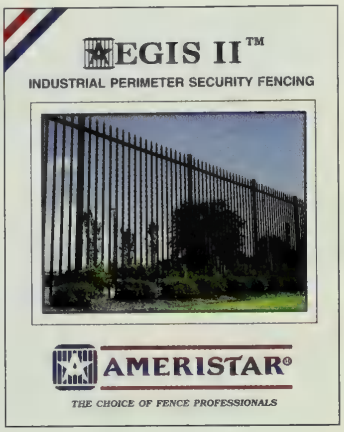


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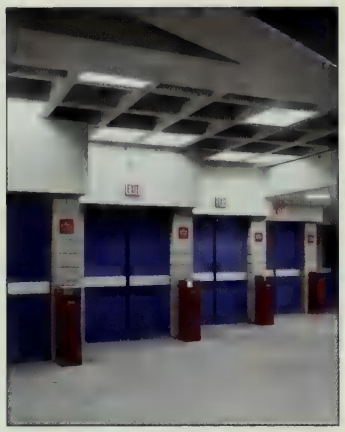


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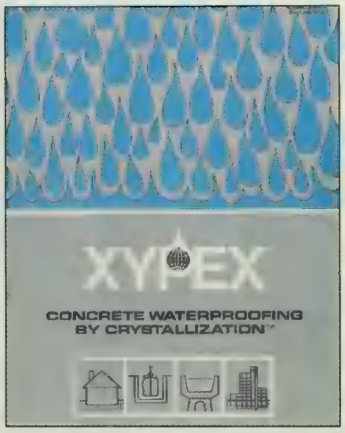


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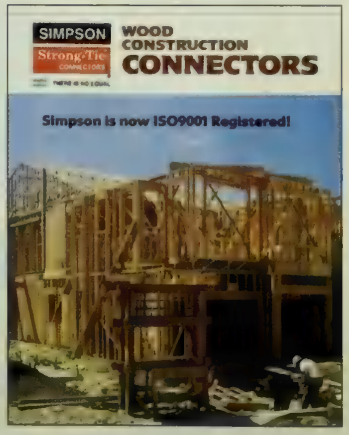


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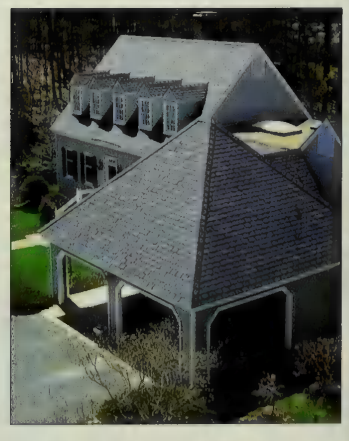


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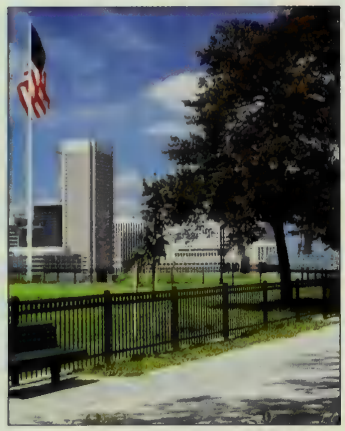


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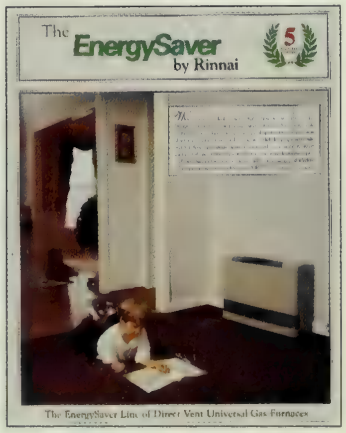


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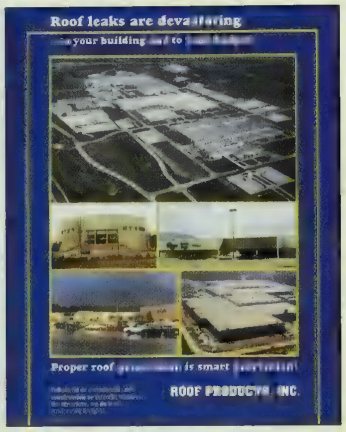


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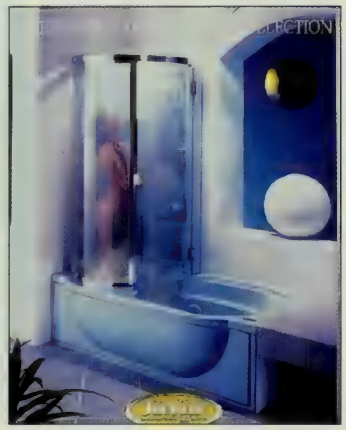


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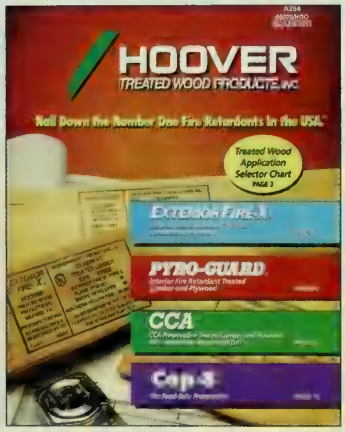


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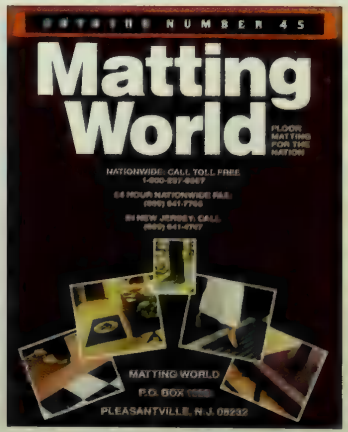


Circle Redmont, Inc.

CIRCLE 103 ON INQUIRY CARD

Floor Matting

The nation's most complete line of floor matting: Identification Logo Mats, Entrance Mats, Anti Fatigue Mats, Food Service Area Mats, Rubber & Vinyl Long Runners, Carpet Top, Anti Static, Chair Mats, Factory Mats, Deck Matting. A mat for just about every application. For a catalog, Fax (609) 641-7766 or write Matting World, P.O.B. 1333, Pleasant-ville, N.J. 08232.



Matting World

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TO ADVERTISE: Call Ally Klarin
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Duraflake FR Fire-rated Particleboard

Duraflake FR provides Class A fire protection in wall systems, store fixtures, furniture and case goods. It has a UL flame spread rating of 20 and a smoke developed rating of 25. Its smoothness, machinability and uniformity make it an ideal substrate. It even resists warping and won't leach chemicals. Call (541) 928-3341. Sweet's Catalog 06300/WIL



Duraflake

CIRCLE 105 ON INQUIRY CARD

Rubber and Vinyl Stair and Floor Systems

Choose the best safety application for you stairs and floors. Recent government safety regulations make attractive many of our products such as fire safety, grit strip, visually impaired and glo strip stair systems. Matching entry flooring including disco, low disc, square, diamond, fluff cord and traffic titles are displayed in new colors with related accessories. To request copies, contact Bob Segers, Musson Rubber Co., P.O. Box 7038, Akron, OH 44306. (800) 321-2381. Fax (330) 773-3254.



Musson Rubber Co.

CIRCLE 106 ON INQUIRY CARD

Automatic Door Bottoms w/ Nylon Brush Seals

Pemko nylon brush conforms extremely well to the contours of any sealing surface, particularly carpet. Nylon filaments penetrate carpet fibers to seal off light, drafts, sound, and insects. These ADB's are fire and smoke labeled, tested for sound, and operate with very low closing force. Full-surface, semi-mortise, and full-mortise models available.

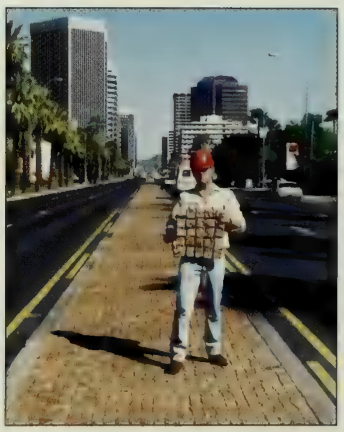


Pemko

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Granite Cobblestone in Modules

An updated catalog features authentic European cobblestone preassembled in modular form. Modules in square, fan, concentric ring, and custom formats arrive at the jobsite ready for a quick and easy installation. Pedestrian or vehicular application. Eurocobble® has supplied the design community with traditional and customized paving solutions for over 15 years. NY (212) 627-5903 or CA (213) 877-5012.



Eurocobble®

CIRCLE 108 ON INQUIRY CARD

Parex Introduces New EIFS Technology

I-C Gold®, Flexible PM EIFS, combines advantages of PM and PB EIFS. The system's thick self-gauging base coat eliminates control joints, simplifies installation, reduces cost and enhances architectural versatility. Mechanical attachment is ideal for aged substrates whose surfaces are unsuitable for adhesives. P.O. Box 189, Redan, GA 30074. (800) 537-2739.



Parex Inc.

CIRCLE 109 ON INQUIRY CARD

Nevco Scoreboard Company

The latest addition to Nevco Scoreboards are the indoor LED models. Features: excellent visibility from all angles, vibration and shock-resistance, LEDs have a rated life of 100,000 hours and reduced current. All scoreboards are UL Listed, CSA Certified and come with a 5 year guarantee. Call 800-851-4040 or fax (618) 664-0398 for a free catalog.



Nevco Scoreboard Co.

CIRCLE 110 ON INQUIRY CARD

T: (800) 544-7929 F: (212) 512-2074

SteelCraft Product Guide #613

The Steelcraft Product Guide is designed with the architect, and design community in mind. Product specifiers can find basic door and frame specifications in a special chart. We have included a "Relative Cost Chart" that shows the cost comparison between various Steelcraft products. We include Steelcraft product specifications; fire label charts; door and frame selection charts; handing charts; and information service list.

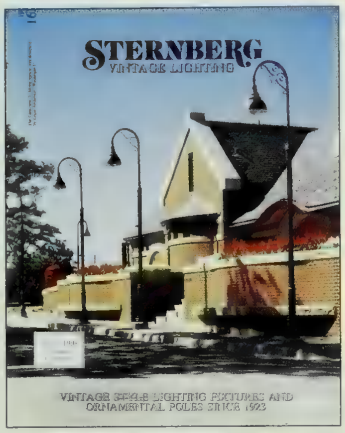


Steelcraft

CIRCLE 111 ON INQUIRY CARD

A New 1998 Catalog From Sternberg Vintage Lighting

This 80-page full color catalog is packed with about 500 individual product photos and shots of installations of all types. There are new fixtures, ornamental poles, new bollards, a new fitter and more information to help specifiers choose the right product and options for a specific project. Sternberg celebrates their 75th anniversary in 1998. It is an employee owned company with all products manufactured in their Niles IL plant.

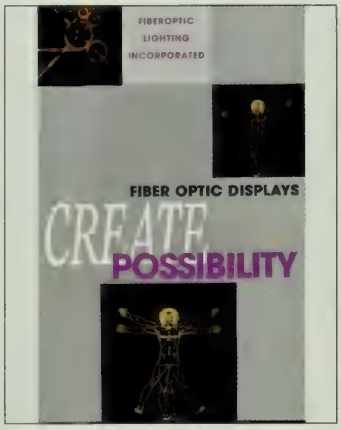


Sternberg Vintage Lighting

CIRCLE 112 ON INQUIRY CARD

Bright Ideas with Fiber Optics

Paint with light! Fiber optic displays are an ideal medium for use in any environment. These low maintenance displays are used for wall murals, ceilings, indoor or outdoor enhancements, hotels, museums, restaurants, retail, office and healthcare facilities. Changing colors and implied motion add to the magic.



Fiber Optics

CIRCLE 113 ON INQUIRY CARD

Catalog of Roofing Publications & Audiovisuals

The National Roofing Contractors Association has more than 90 roofing-related products, including the 1,858-page NRCA Roofing and Water-proofing Manual-Fourth Edition and the NRCA Construction Details on CD-ROM in .DWG and .DFX formats. For a free catalog, contact NRCA Marketing Services. 10255 W. Higgins Road, Suite 600, Rosemont, IL 60018, (800) 323-9545.

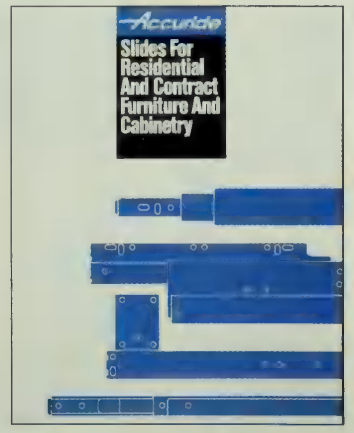


National Roofing

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Accuride

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Innerface makes it easier for you to meet the Americans With Disabilities Act (ADA) signage standards. Innerface offers (1) A variety of compliance signage, (2) National distribution (3) Solid 27 year history and (4) Economical, attractive, & highly functional interior and exterior signage. Innerface also offers signage planning and wayfinding services. For free literature, please call (800) 445-4796.



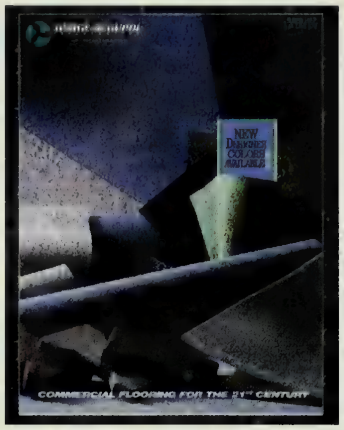
Innerface

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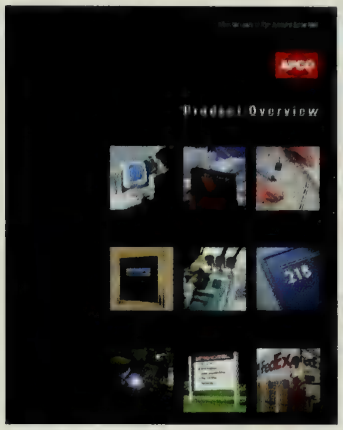


Dodge Regupol

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As an industry leader for 31 years, APCO understands the importance of a building's signage in creating a favorable and lasting impression. The company offers a diverse product line designed to meet architects' specific needs — from interior and exterior sign systems to displays, directories, signmaking software, and ADA compliant signs. APCO Graphics, Inc., 388 Grant Street, SE, Atlanta, GA 30312, Phone: (404) 688-9000, Fax: (800) 329-2726.



APCO

CIRCLE 118 ON INQUIRY CARD

Mini-JOMY

The JOMY Safety Ladder Co. proudly introduces the Mini-JOMY, a scaled down version of the JOMY Safety Ladder, specially designed for residential and light commercial applications. The Mini-JOMY looks like a drainpipe but folds out to a 17" wide ladder with slip resistant rungs constructed of extruded anodized aluminum and stainless steel. The Mini-JOMY is maintenance free and will last the lifetime of any building. Call 800-255-2591 for additional information.



JOMY Safety Ladder Co.

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Vintage Lumber Co., Inc. has been manufacturing exceptional antique T&G plank flooring since 1973. Our extensive selection, consistent quality, on time delivery, and technical expertise is unequaled in the industry. For more info call 800-499-7859 or fax 301-845-6475. P.O. Box 104, Woodsboro, MD 21798

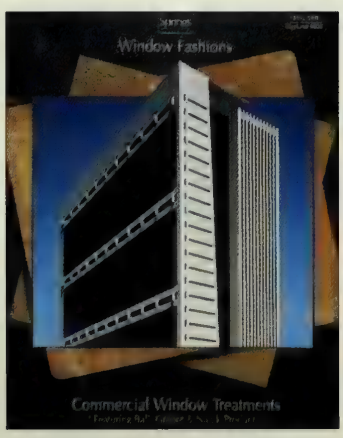


Vintage Lumber

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Manufacturer of Bali, Graber and Nanik

Springs Window Fashions manufactures Bali, Graber and Nanik commercial window treatments, including horizontal/vertical blinds, cellular/pleated shades and drapery hardware. Aluminum blinds feature antistatic paint finish to help repel dust. Privacy slats available on S3000 mini blinds. Architects/specification writers, call SpecFax (800) 327-9798 for specification sheets or technical advice.



Springs Window Fashions

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Soffi-SteelTM System

The Soffi-SteelTM system is available for commercial and institutional applications. A prefabricated, rugged, snap-on soffit with an attractive and quick, clean installation. Commercial Soffit-Steel for hospitals, dormitories, apartments, etc., and the institutional Soffi-Steel system for jails and prisons. Custom sizes, shapes, and finishes. Grice Engineering, Inc., P.O. Box 8037, Janesville, WI 53547-8037. Toll-free #: 800-800-3213/Fax #: 608-757-1452. E-mail: ge@mindspring.com



Grice Engineering, Inc.

CIRCLE 122 ON INQUIRY CARD

TO ADVERTISE: Call Ally Klarin
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New Nystrom Design Catalog

Nystrom Building Products has released the latest version of its design catalog. The easy to read format makes this the ideal desktop reference for specification information on louvers, access panels, roof hatches and floor hatches. This catalog covers the use of these products in every application you can imagine. For additional information contact Nystrom directly at (800) 781-7850.



Nystrom Building Products

CIRCLE 123 ON INQUIRY CARD

The Opening Glass Wall

A full line of aluminum and wood framed systems that make large exterior openings possible. Expand space with indoor/outdoor areas. Increase business with large, inviting entrances. Ideal for both residential and commercial applications. An aesthetic, engineered solution offering weather tightness, security, and ease of operation can be provided for almost any conceivable application. Available are folding, paired and individual panel systems. Call (800) 873-5673 or fax (415) 383-0312.



Nana Wall Systems, Inc.

CIRCLE 124 ON INQUIRY CARD

Snakelight

The flexibility of the Snakelight solves a multitude of lighting problems. Subtle accent lighting or part of a bold design statement, Snakelights are a quick, affordable and elegant solution for both residential and contract installations. Snakelights come in a variety of mountings, sizes and colors with custom options available. Please call or write for a free brochure. MD Enterprises, Inc., Snakelight, P.O. Box 2554, Vashon Island, WA 98070. Phone (206) 463-9272 or Fax (206) 463-6717.



MD Enterprises, Inc.

CIRCLE 125 ON INQUIRY CARD

Carriage House ShangleTM

The Carriage House ShangleTM design utilizes CertainTeed's exclusive Super Shangle® construction with two full-size base shingles, resulting in virtually four layers of shingle protection and 8-inch exposure when applied. This super-heavyweight shingle (355 lb per square) also features a unique chamfered cut for scalloped appearance. Fiber glass composition. UL Class A. Lifetime limited, transferable warranty. Algae-resistant. Meets ASTM 3462 Tear Strength.

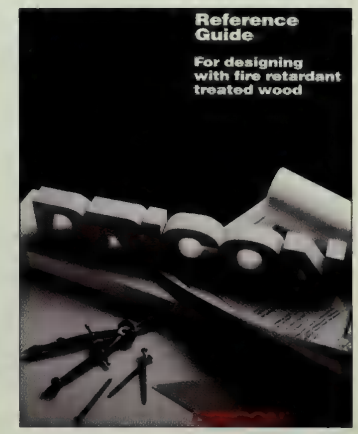


CertainTeed

CIRCLE 126 ON INQUIRY CARD

FRT Wood & Building Codes

"Reference Guide for designing with fire retardant treated wood" outlines codes-compliant applications for FRT wood. This includes the National, Standard, Uniform, and CABO codes. The recently updated guide also covers design properties, test standards, identification, and specification, and describes the Dricon® brand. Hickson Corp., 1955 Lake Park Dr., Suite 250, Smyrna, GA 30080. Tel: 404-362-3970.



Hickson Corp.

CIRCLE 127 ON INQUIRY CARD

Decorative, Thin-Film Intumescent Fireproofing

Certified for beams & columns for ratings up to 3 hrs.! A/D Firefilm permits the designer to use the appearance of exposed steel with the steel fully protected from fire. Applied as a thin-film coating 0.4 to 3 mm (0.02 to 0.12 in.) thick. During a fire it expands to form a meringue -like layer up to 100 mm thick. The topcoat is available in a wide choice of colours. 416-292-2361. (800) 263-4087



A/D Fire Protection

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Porcelain Manufacturer

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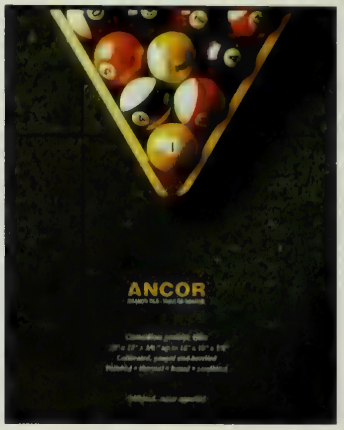


PG Bell

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Ancor produces over fifty No. American and Imported granites in a full range of colors and finishes for residential, commercial and institutional use. Standard format is 12 x 12 x 3/8"; other sizes up to 18 x 18 x 1/2" available. Honed finish tile is particularly suitable for high traffic commercial areas, 435 Port Royal West, Montreal, Quebec, H3L2C3, Canada. Ph# (514) 385-9366, Fax# (514) 382-3533.



Ancor Granite

CIRCLE 130 ON INQUIRY CARD

Slam Locker Door, No Bang!

Hadrian's smooth faced, double-pan box, honeycomb-cored door, with a full-length "piano" hinge, has surpassed strength and impact resistance... and closes silently! Its recessed, single point positive spring latch reduces maintenance. Unobtrusive ventilation louvers in the frame defy blockage. Eighteen standard colors, multicolors at no up-charge. Call (216) 974-7120. Fax (800) 536-1469.

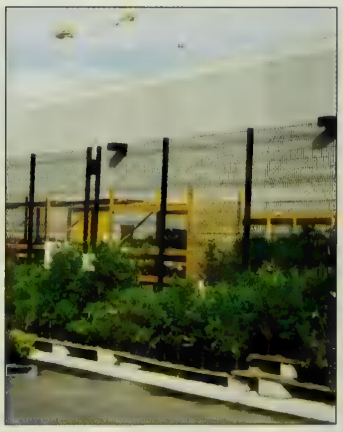


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This new aesthetically appealing Euro-design fence system combines see-thru good looks with strength and durability of 6-gauge galvanized steel mesh. Powder-coated in a large variety of colors to suit any design & enhance the appearance & security of any property it surrounds, this fence system is virtually unclimbable, rugged maintenance-free and easy to install. 1-800-836-6342. www.maniacom.com/omega.html



Omega Fence Systems

CIRCLE 132 ON INQUIRY CARD

Pan-Tech

manufactures composite building panels in a variety of different face materials and finishes. Aluminum: two, three and four coat Kymar finishes, anodized, colour & brushed. Stainless Steel: 304, 316 grades, #4, #8 finish, coloured stainless and patterned. Zinc: Rheinzink preweathered. Porcelain: for Spandrel applications. Copper: prepatinated.

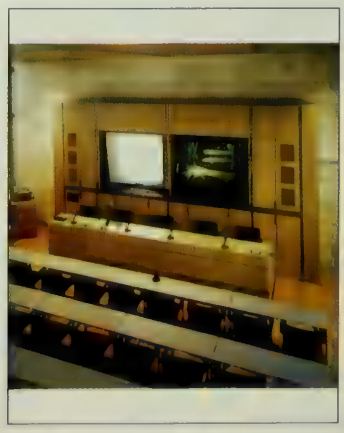


Pan-Tech, Inc.

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Windel International Design Concept

Brings together the best in materials and workmanship from around the world. Media Wall - every amenity your conf. or training room requires, rear and front projection, mult. monitors and boards in a cust. designed state-of-the-art wall system. Col. Mount. Board System - quiet, bal. to perfection, easy to operate, and durable beyond your expectations. InfoRail System - a double rail for mult. boards, screens, flip charts, plus an integrated paper clamp throughout. Writing boards and media furn. provide the highest qual. support and the latest design for your creative presentations.



Windel

CIRCLE 134 ON INQUIRY CARD

POSITIONS VACANT

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The Urban Redevelopment Authority (URA) is Singapore's planning and conservation authority with a commitment to making Singapore a tropical city of excellence. We need a team of dynamic and forward looking professionals with new ideas to realise our bold vision.

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You will be involved in planning the physical development of Singapore through planning and urban design studies. You will help to design the layout of development areas (including waterfront areas), urban form and environment to create unique and exciting places and to meet the social and economic needs of the nation.

You should possess a Degree or professional Diploma in Architecture or its equivalent and have 3 - 5 years' of urban design working experience.

APPLICATION

Please write in stating full personal particulars, qualifications (with detailed results/transcripts), relevant working experience, present and expected salaries to: ***The Recruitment Officer, URA Building, 45 Maxwell Road, Singapore 069118, Tel: (65) 221 6666, Fax (65) 220 1595 or e-mail: urahrr@singnet.com.sg*** *(attachments should preferably be in Word6 or WP5.2).*

Closing Date: 17 January 1998

URBAN REDEVELOPMENT AUTHORITY

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A prominent engineering firm in prime North Scottsdale, Arizona has excellent opportunity for 2 qualified AutoCAD R13 Drafters. Structural/Architectural experience a must. Top pay, excellent growth potential, super benefit pkg., 401(k), health ins, production incentives, quarterly profit sharing, etc. EOE. FAX resume ASAP to Richard @ PACS (602) 998-7704.

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Established firm with very successful upscale residential practice seeks registered Architect, 5 years experience, to assume office and practice administration as well as project architecture with specific opportunity for partnership. Send resume to: P.O. Box 162, New Canaan, CT 06840.

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Denver, CO. Design hotel projects applying knowledge of construction, materials, zoning and building codes and construction standards of hotel franchises. Prepare specifications and construction documents for review by concerned authorities and contractor bids. Establish standards and supervise computer aided design (CAD) drafters using AutoCAD, 3D Studio and Adobe Photoshop to prepare drawings, CAD images and animated display models for firm projects. Bachelor's in Architecture with 1 year experience in hotel design. 40 hr/wk. $27,500/yr. Mail resume to Colorado Department of Labor and Employment, Attn: Jim Shimada, Tower 2, Suite 400, 1515 Arapahoe St, Denver, CO 80202-2117, referring to JO #CO-4551355.

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Southern California based lighting design firm with high profile/diverse clients and national/international projects seeks Architect (or related degree) with at least 4 years experience. All or a combination of these specific qualifications - CAD, computer rendering, hand rendering, detailing, passion for powerful lit environments. Company culture promotes camaraderie, casual atmosphere and badminton on Fridays, but also individual self discipline and the highest quality design work. Salary commensurate with experience. Fax resume to Patrick Quigley & Assoc. (310) 320-3482.

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40 hrs per week. 8:00 am to 5:00 pm. $43,000 per year. Provide guidelines, analysis and facility plans to support facility planning functions within clients' office space. Review facility locations management process, building and furniture systems, spatial relationships and other relevant facility data to determine most efficient use of space. Design and develop computer-based information systems using appropriate technology to facilitate structured analysis and decision making. Required: MS in Architecture or Design; one year experience in job offered or as system administrator or CAD designer. Must have proof of legal authority to work permanently in the U.S. No calls — send two copies of resume and cover letter to: Illinois Department of Employment Security, 401 South State Street - 7 North, Chicago, IL 60605, Attn: Mary Millea. Reference #V-IL 15713-M. An employer paid ad.

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PENNSTATE
University Park

DEPARTMENT HEAD, ARCHITECTURE

Candidate must hold an accredited master's degree in architecture, or its equivalent, and have attained a distinguished record of professional, scholarly and academic accomplishments. Candidates must be licensed to practice architecture in the United States or be eligible for reciprocal licensure. Previous administrative experience desirable.

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ARCHITECTURE FACULTY POSITIONS

(Full-time tenure-track for Fall '98) in: 1. Architectural Design/Graphics and Construction/Environmental Controls, 2. Architectural Design/Graphics and History of Architecture. Judson College is a Christian college of the liberal arts and professions committed to an evangelical expression of Christian faith, seeking candidates desiring to teach in such a setting. Applications due Jan 31, 1998. Adjunct/part-time positions may additionally be available. For application and details, call/write etc. to: John K Hopkins, Director, Architecture Program, Judson College, Department of Art, Design & Architecture, 1151 N State St., Elgin, IL 60123. (Phone: (847) 695-2500 x3340, Fax: (847) 695-8014, e-mail: jhopkins@mail.judson-il.edu)

THE UNIVERSITY OF TENNESSEE KNOXVILLE

The School of Architecture seeks candidates for at least one anticipated full-time tenure track position in Architectural Design, at either the Assistant or Associate Professor rank, commencing Fall 1998. Candidates should be qualified to teach Architectural Design at all levels in both the undergraduate and graduate programs, as well as a second elective course in an area of related specialization, such as computer aided design, drawing, interior design, landscape architecture, structures, technology or theory. Prior to appointment, applicants should possess a professional degree in Architecture, including a graduate degree in either Architecture or another related field (i.e., Art, Landscape Architecture, Urban Design, Planning, etc). Experience in teaching is valued. Experience in distinguished practice and professional registration is desirable. All candidates must have the interest and potential to pursue self-defined intellectual objectives through research, scholarship, creative work, and/or practice. Candidates should submit a letter of interest and objectives, a curriculum vitae, photocopied select examples of design work (non-returnable), and the names of three references by February 15, 1998, to: Thomas K. Davis, Chair, Design Faculty Search Committee, School of Architecture, University of Tennessee, Art and Architecture Building, Knoxville, TN 37996-2400. UTK is an EEO/AA/Title IX/Section 504/ADA/ADEA Employer.

ASSISTANT PROFESSOR RICE UNIVERSITY

Rice University invites applications and nominations for a tenure track appointment at the level of Assistant Professor. This full time position is available beginning Fall 1998 for a person qualified to conduct design studios and lecture courses at both the graduate and undergraduate level. Candidates should hold a Master of Architecture degree or its equivalent. Prior teaching experience and a record of scholarly work in related studies are desirable. Applications will be considered until February 27, 1998. Letter of interest and curriculum vitae should be forwarded to: Chair, Faculty Search Committee, School of Architecture, MS-50, Rice University, P.O. Box 1892, Houston, TX 77251-1892. Rice University is an Equal Opportunity/Affirmative Action Employer. Applications from women and minority candidates are encouraged. Rice does not discriminate on the basis of race, color, religion, sex, sexual orientation, national or ethnic origin, age, disability, or veteran status.

CHAIRPERSON
SCHOOL OF ARCHITECTURE
UNIVERSITY OF NOTRE DAME

The School of Architecture at the University of Notre Dame, which celebrates its 100th anniversary in 1998, invites applications and nominations for the position of chairperson of the School of Architecture. As head of this freestanding school within the University, the chairperson reports directly to the University's provost. The effective date of this appointment will be July 1998.

The Notre Dame School of Architecture is internationally recognized for its strength in traditional and classical design in architecture and urbanism, and is the oldest architecture school at a Catholic university in the country. This strength is reflected both in the accomplishments through research and scholarship of the faculty and in the teaching quality demonstrated in the school's undergraduate and graduate programs. The school is currently being awarded two new endowed professorships and is housed in a landmark building that has just undergone a $12-million expansion and renovation. In addition, the school's Rome Studies Center is housed in its own building near the Pantheon and Piazza Navona in the city's Centro Storico. The center is equipped with studios, classrooms, a library, exhibition facilities and administrative offices, and in 1989 was extensively renovated. All third-year undergraduates spend the full academic year in Rome.

The undergraduate curriculum is a five-year program leading to a first professional degree. The graduate curriculum is a two-year program that encompasses both a first professional degree and a post-professional degree at the master's level. The graduate program is funded by endowments that provide stipends and full tuition to as many as 15 students annually.

The school seeks candidates with demonstrated leadership qualities and proven excellence in their academic and professional pursuits, and whose scholarship and practice engage with breadth of vision the theories of traditional and classical design that are the school's foundation.

The Search Committee will begin reviewing applications after November 15, 1997. Send nominations and applications to: Search Committee — School of Architecture Chairperson, Office of the Provost, 234 Hayes-Healy Center, University of Notre Dame, Notre Dame, IN 46556.

The University of Notre Dame is a private, Catholic institution and an affirmative action, equal opportunity employer. The University strongly encourages applications from minority and women candidates.

UNIVERSITY OF MICHIGAN COLLEGE OF ARCHITECTURE AND URBAN PLANNING

POSITIONS: *Design and Other Substantive Areas:* College seeks applicants for two tenure track (assistant professor) or tenured (associate professor or professor) positions. Each position involves teaching design studio, plus teaching and research in one or more substantive areas, including: computer aided design, design process and methods, environment and behavior, and the socio-cultural aspects of architecture and design. Successful applicants will be expected to contribute to both the professional and doctoral programs, and to contribute to the scholarly and research activities of the college.

QUALIFICATIONS: Applicants are expected to demonstrate excellence in studio design teaching, as well as a record and/or potential for creative scholarship in one or more of the listed substantive areas. A professional degree in architecture or an advanced degree in a related field is required; a doctoral degree and/or a professional license are desirable.

APPLICATIONS FOR POSITIONS: COLLEGE OF ARCHITECTURE AND URBAN PLANNING THE UNIVERSITY OF MICHIGAN: Applications must be post marked no later than 20 January 1998 for the above positions. All positions will be available in September 1998. Applicants should specify the position being applied for and send: 1) letter of interest, 2) curriculum vitae, 3) names, addresses and phone numbers of three references. Mail application materials to Search Committee Chair, College of Architecture + Urban Planning, The University of Michigan, 2000 Bonisteel Blvd. Rm. 2150, Ann Arbor, MI 48109-2069. The University of Michigan is a non-discriminatory, affirmative action employer. Ethnic, minorities and women applicants are strongly encouraged to apply.

THE COLLEGE OF ARCHITECTURE AND URBAN PLANNING ALSO OFFERS THREE ONE-YEAR FELLOWSHIPS: The William Muschenheim Fellowship, the Walter B. Sanders Fellowship and the Willard A. Oberdick Fellowship. Fellowship applications will be reviewed beginning January 2, 1998. Please call (313) 936-0221 for more information.

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OFFICIAL PROPOSALS

Request for Architect Qualifications

The **NATIONAL UNDERGROUND RAILROAD FREEDOM CENTER** seeks expressions of interest from multi disciplinary architect teams for the design of a 125,000 square foot distributive museum and education facility dedicated to the story of the Underground Railroad; its significance in the history and future of the United States. Proposed for a Cincinnati site near the Ohio River, the Freedom Center is planned as a centerpiece in Cincinnati's Central Riverfront development.

The selection process has two stages. The first stage consists of reviews of the team submissions by a committee. Stage two will engage selected teams in an interview/presentation of work and a design conversation that explores each team's Freedom Center vocabulary and concepts. An appropriate honorarium will be provided to the teams selected for stage two. Letters of interest must be received not later than 20 January, 1998.

Send letters of interest requesting the project prospectus and schedule with a check for $50.00 to:

The National Underground Railroad Freedom Center
312 Elm Street,
Enquirer Building
20th Floor
Cincinnati, Ohio 45202

Edwin J. Rigaud
Executive Director

Harry G. Robinson III, FAIA AICP
TheRobinsonGroup
Professional Advisor

National UNDERGROUND RAILROAD Freedom Center

REQUEST FOR LETTER OF INTEREST

Notice is hereby given that the NYSDOT is seeking to retain two licensed architecture/engineering firms, engineering firms, or a team comprised of both to provide Preliminary and Final Highway Design Phases I-VI and Final Building Design Services for two rest area facilities, under D010078, Pin 5006.58 and for Preliminary and Final Highway Design Phases I-VI and Final Building Design Services for a Tourist Information Center (TIC) under D010079, Pin 5006.59. Both rest areas are located on Route 17 in Chautauqua and Cattaraugus Counties. The TIC will be located in Chautauqua County. All interested firms must submit a brief one-page Letter of Interest (LOI) by mail (fax is not acceptable) to this office by COB on December 15, 1997. All firms submitting an LOI in response to this advertisement will be sent an RFQ when it becomes available. Please submit LOI's to: Kathy Smolinski, Contract Management Bureau, NYS Department of Transportation, State Campus, Building 5, Room 108, Albany, NY 12232-0203. Phone: (518) 485-8295.

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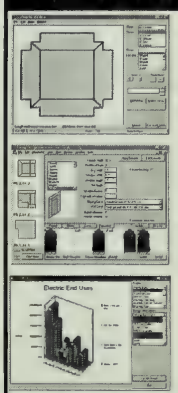
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THE FUTURE Unconventional geometries: Is composite construction the wave of the future?

BY JOSEPH F. WILKINSON



Is plastic about to become the next best building material? Composites have been around since 1943, when a polymer (plastic) was reinforced with fiberglass to make the fuselage of Navy training planes, and they've been used so far in automobile bodies, boats, skis, bearing piles, golf clubs, freight cars, utility poles, bombers, sewer pipes, sewing machines, prosthetic limbs, and railroad ties—but not as key elements in many buildings.

William Kreysler, whose Penngrove, California, company is a leading producer of composite decorative elements, predicts that composites will soon be accepted as structural material and will change our concepts of buildings.

"Composites got their foot in the construction door by pretending to be something else, mimicking other materials," says Kreysler. "This is unfortunate, because composites are so unique and so versatile and can open the doors to so many new opportunities.

"Composites can take us out of our orthographic rut. These polymers are strong and light and they don't require the same structural system that conventional materials do. Frank Gehry is designing shapes that are ideal for composite elements because they have compound curves. Most architects think a compound curve is expensive to do, and it is—with conventional material. But a compound curve is cheaper to produce in composites than an orthographic shape. You could build an entire building with composites without a structural steel frame."

Composites such as beam sections (above right) have made inroads in infrastructure construction because they have a high strength-to-weight ratio, they are resistant to corrosion and rot, and they are light in weight. They aren't cheap, but they promise low life-cycle and maintenance costs in applications such as pedestrian overpasses, small vehicular bridges, and traffic decking.

Because they're transparent to radio waves, composite sections are used to build decorative towers and turrets to enclose communication equipment atop office buildings. Clinics use composite structures to house magnetic-resonance imaging (MRI) apparatus. Many hospitals want rooftop helicopter pads, and plastics make landing pads for roofs that can't take the weight of concrete. Immune to de-icing salts, FRP reinforcing bars and prestressing tendons are now specified for concrete parking decks.

Today, architects most commonly use composites for preformed bathtub/shower units and counter surfaces. The next most popular application for polymer building material is as decorative elements such as cupolas, pediments, railings, friezes, and steeples that never rot and don't need painting. An example of the architectural potential of composites is the 147-ft-high, 180-ft-diameter dome built for a Reno, Nevada, casino (below). Made of 1,996 fire-resistant composite panels, the structure cost 20 percent less than a metal geodesic dome and weighs half as much.

"We're saying and proving that composites can be used to replace primary structures," says James Irwin, president of Ratech Industries, Inc., the Sparks, Nevada, designer and builder of the dome. The firm specializes in unconventional structures that require spherical, nonspherical, or compound-curve shapes, and is currently working on another huge dome, for a 3-D IMAX theater in Seattle.

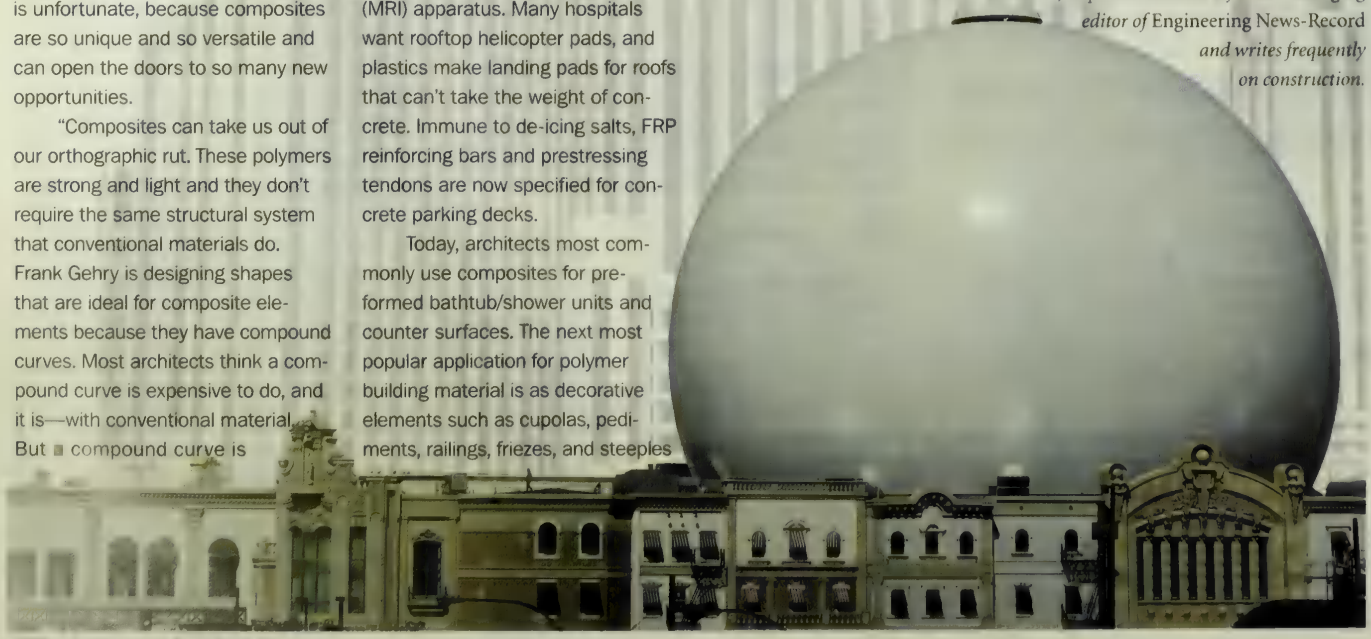
"Composite construction is the wave of the future," says Irwin.

"Architects nowadays are looking to do unconventional things. Historically, people have done the best they could with steel and conventional materials, but these limit design to conventional geometry. Composites will give people the opportunity to work in a nonangular dimension.

"Using composites, you could build a home using only half the time and half the materials. You can, literally, mold homes and make them modular in nature and assemble them on site. Building things of sticks and nails is pretty archaic."

But while composites offer the allure of the unconventional, they also carry the burden of the new, without the track record or predictable standards of steel, concrete, and wood. Only when national criteria are established will architects and clients find composites more attractive. ■

Joseph Wilkinson is a former managing editor of Engineering News-Record *and writes frequently on construction.*



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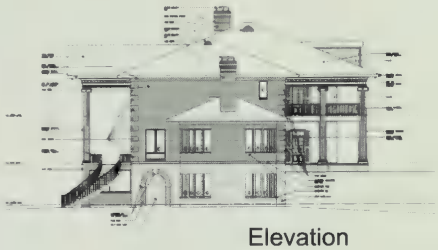
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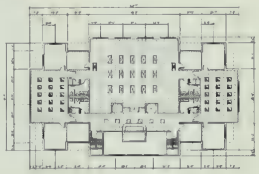
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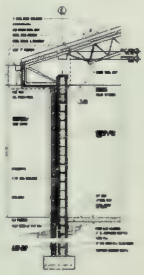
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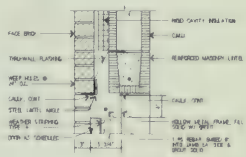
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